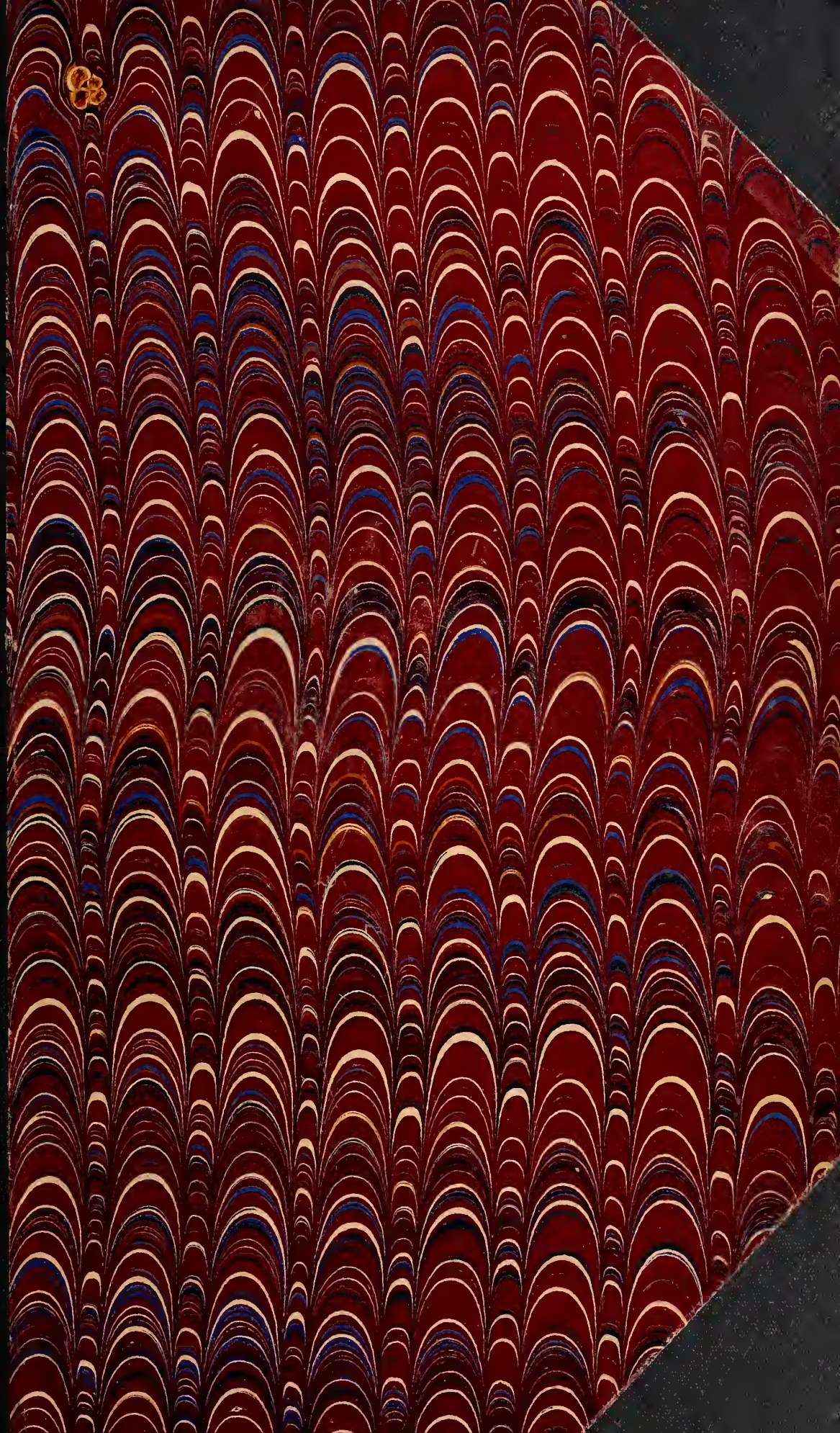



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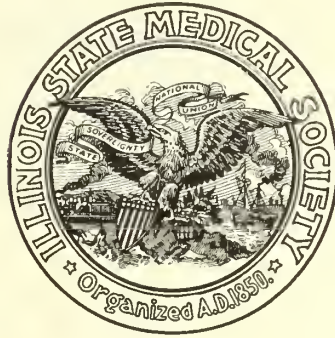
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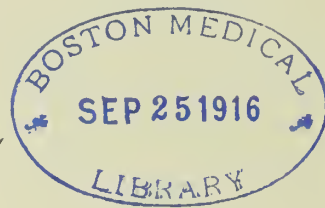
CLYDE D. PENCE, M. D., Editor

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JANUARY TO JUNE, 1915



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January to June, 1915

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including the names of papers

read, officers elected, etc., can be located in the proceedings under Societies. Editorials, News of the State, Marriages, Deaths, Public Health Items are classified under these headings. The subjects of editorials also appear alphabetically and are marked (E).

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JOINT-BODIES FROM WITHIN AND FROM WITHOUT PRESENT IN ARTICULA- TIONS OTHERWISE APPAR- ENTLY NORMAL.*

Condensed.†

AIME PAUL HEINECK, M. D.,
CHICAGO, ILL.

An analytical review of all cases of joint-bodies originally reported in the English, French and German medical literature from 1890 to 1913, inclusive, and a few unpublished personal cases.‡

The articular bodies which we propose to discuss were unassociated with joint lesions other than those determined by the presence of the joint-body or by the violence responsible for its existence. Joint-bodies due to local articular disease (Tuberculosis,¹ gonorrhea, suppurative arthritis,² etc.), secondary to systemic disease (Nervous arthropathies, tabes dorsalis, etc.); symptomatic of mono-or polyarticular arthritis deformans, constitute other chapters of pathological anatomy and, therefore, are not considered in this contribution.

We therefore eliminated:

1. Cases reported with insufficient data or with only unimportant details.
2. Supposed or true cases of fragmented, displaced or detached semilunar cartilage.³
3. Cases of extra-articular bodies which previous to operation had been mistaken for cases of joint-bodies-Schmieden.⁴
4. Cases of extra-articular bodies of intra-articular origin.⁵
5. Cases of joint-body lodged in joint-capsule diverticula, communicating, or not, with the general synovial cavity.⁶
6. Cases of a nature so distinct from that of

the joint-bodies herein considered that their inclusion would serve no useful purpose, would needlessly confuse the reader (Pedunculated chondro-sarcomata,⁷ etc.).

7. Cases in which pre-existing or co-existing disease of the articulation can be considered a contributory etiological factor (gonorrheal,⁸ suppurative arthritis⁹).

9. Cases of extra-articular bodies reported as cases of intra-articular bodies.¹⁶

Primary joint-bodies admit of the following classification, viz.:

1. Joint-bodies originating outside of the organism.
2. Joint-bodies originating within the organism.

JOINT-BODIES ORIGINATING OUTSIDE OF THE ORGANISM.

These bodies, totally foreign to the organism, penetrate into the articular cavity by way of punctured, gunshot, or other wounds of the skin and other overlying peri-articular tissues. They presuppose a wound of the articular capsule. They are of different nature; phonograph pin,¹³ a piece of handrail made of wire-rope,¹⁴ a sewing needle,¹⁵ part or whole, and very frequently a bullet.

We have been able to collect fifteen cases of joint-bodies originating without the organism: Three of the patients were females, eleven were males; in one, the sex is not stated. The youngest patients were 3.5, 6 and 7 years old respectively. The oldest one was sixty-one years old.

These bodies may be single, or multiple; mobile, or immobile; may be encysted, and may be impacted.

To aid in the diagnosis of bodies of this type, we have, almost always, the history of an injury plus the sear of the entrance wound. This always obtains in cases of projectiles.^{17, 18, 19, 20}

At times, the history is indefinite and insuffi-

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†Author's reprints include complete article.

‡All the English, French and German publications to be found in the John Crerar Library, Chicago, Illinois, U. S. A.

1. All footnotes refer to bibliography, which appears in full in author's reprints.

cient in itself to establish a positive diagnosis.

In all the reported cases, *pain* was present. In all the reported cases, there was *impairment of joint-function*. All the reported cases presented a *joint-effusion* sufficiently marked to be noted. In a few cases, the joint body was palpable.¹⁴⁻¹⁹⁻²⁰ In general, pain, limping and joint-effusion were increased by overuse. *Joint-locking* was present in one case.¹⁹

The x-ray is an invaluable diagnostic aid in these cases; it furnishes information as to nature, shape, volume, number and site of the joint-body or bodies to the surgeon, it reveals the exact nature of the joint-trouble and shows him how to best approach and remove the offending body. In fact, in many of the reported cases, it corrected an erroneous diagnosis.²¹

In two cases, the joint-body was approached by a longitudinal incision,²² made in the popliteal space. In one case,²³ a large anterior curved incision, dividing the ligamentum patellæ and the anterior capsule thereby completely exposing the articulation, was employed. In another case, the operator resorted to a curved incision parallel to the fibres of the vastus internus. In other cases, a vertical incision, either immediately above or at some distance from the joint-body, was used. Dawbarn²⁴ in his case irrigated the joint with 1-2000 HgCl₂ solution followed by normal salt solution. The articulation was drained in two cases. In five cases, immobilization was a part of the post-operative treatment.

In all these cases, an arthrotomy was performed and in thirteen of them the articulation was entirely freed of the joint-body or bodies present.

In twelve cases, operation was followed by complete functional recovery. In the three remaining cases, the joint-weakness present before intervention did not disappear completely after operation.

PRIMARY JOINT-BODIES ORIGINATING WITHIN THE ORGANISM.

These bodies occur in joints otherwise sound. These joints may, however, present alterations secondary to joint-body irritation, lesions due to the violence which detached the joint-body or changes due to some non-related cause.

We will attempt to determine some facts relative to joint-bodies originating within the organism:

- a. What is their incidence?
 1. As to age?
 2. As to sex?
 3. As to articulation involved?
 4. As to association with pre-existing or co-existing, congenital or acquired, anomalies of the affected articulation?
- b. Their etiology, structure and pathological anatomy.
- c. Their symptomatology.
- d. Their differential diagnosis.
- e. Their treatment: operative or non-operative. If operative, should one resort to local or general anesthesia? To joint-lavage? To joint-drainage? To immediate closure of the articulation? To immobilization? What is to be the nature of the post-operative treatment?
- f. Results of operative treatment.
- g. Conclusions.

Incidence as to age.—The reader will keep in mind that the reported age is not that at which the joint-body first became manifest, but is the patient's age at time of operative relief.

The patient's age is not reported in sixteen cases. Fifty-six of the patients are designated as "young men." The two youngest patients operated on for joint-bodies originating within the organism were nine⁴ and twelve years²⁵ old, respectively. The knee was the articulation involved in both cases. The oldest patients were sixty-four²⁶ and sixty-five years of age,⁴ respectively. Schmieden's⁴ patient had sustained, fifty-six years previous to joint-body removal, a severe fall upon his right knee. The accident was followed, almost immediately, by typical joint-body symptoms. The other cases admit of the following tabulation:

From 14-19 years	45 patients.
20-29 years	97 patients.
30-39 years	41 patients.
40-49 years	34 patients.
50-60 years	10 patients.

Forty-one patients were subjected to operation for removal of elbow joint-bodies. Twenty-six of these patients were under twenty-one years of age.

Out of 261 cases, involving all the articulations but the elbow, one hundred and thirty-nine, over one half, are definitely stated to have applied for

and received operative relief during the third and fourth decade of life, that is, during the period of greatest muscular activity and of maximal exposure to external traumatic influences.

Incidence as to sex.—The sex of the patient is not reported in eight cases. Thirty-three of the patients were females, and the remaining two hundred and sixty-two were males.

The relative freedom of the female sex from this pathological condition applies to all articulations. Thus, out of forty-one patients, in whom the elbow-joint was opened for the removal of joint-body or bodies, only three are said to have been females. In these three cases²⁻⁴⁻²⁷ the right elbow was the joint involved; in each there was a history of trauma as etiological factor.

Out of two hundred and forty-five patients operated upon for knee-joint bodies, twenty-six are said to have been females.

Women, owing to occupation, mode of life, etc., are less exposed to traumatic influences than men, and, therefore, pathologic conditions due to external violence are far less frequent in females than in males.

Incidence as to articulation involved.—The condition may be mono-articular, poly-articular, or bilateral.²⁹⁻³⁰ Dissimilar joints may be involved in the same individual.

The unequal joint distribution is amply demonstrated by our cases. In some articulations, joint-mice are pathological curiosities. Morestin³¹ found in the right piso-pyramidal joint of a female dissecting room subject, a smooth, ovoid, bean-sized, osseous, pedunculated body.

The joint-incidence in the other cases which we studied is as follows:

UPPER EXTREMITY.		
Right	2	
Metacarpo-phalangeal joint of thumb.....		1
Right	1	
Radio-carpal joint.....		2
Right	1	
Left	1	
Shoulder-joint		1
Left	1	
Elbow-joint		41
Side not mentioned.....	1	
Right	30	
Left	10	
LOWER EXTREMITY.		
Second metatarso-phalangeal joint (33).....		1
Side not mentioned.....	1	
Ankle-joint		4
Side not mentioned.....	1	
Right	2	
Left	1	

Hip-joint		3
Right	2	
Left	1	
Knee-joint		250
Side not mentioned.....	42	
Bilateral	8	
Right	99	
Left	101	

The preceding shows—

a. That all the bilateral cases involved the knee-joint.

b. That the knee-joint is more frequently the seat of joint-bodies than all the other joints put together (about five-sixths of all cases involved the knee).

c. That the elbow, next to the knee-joint, is the articulation most frequently involved.

d. That, excluding the joints of the upper extremity, there is no marked predilection for either side, both right and left sided joints being involved with about equal frequency.

Association with pre-existing or co-existing congenital or acquired anomalies of the articulation harboring the joint-body or bodies.

Primary joint-bodies occur in articulations otherwise normal, and in articulations, the seat of other non-related pathologic processes. In the latter condition, there will be present a double disability: That determined by the presence of the joint-body and that dependent upon associated conditions.^{17, 33, 36}

The indication for removal of the joint-body will be no less imperative, but this removal will, of necessity, have to be supplemented by correction of the associated pathologic conditions.

The violence responsible for the presence of a joint-body may (simultaneously) have injured neighboring structure or structures.

ETIOLOGY.

Joint-bodies are found in individuals of all ages, of both sexes, in all walks of life and in the white and colored³⁹ race. Many of the reported cases occurred in cricketers, footballers, golfers or equestrians, etc. In the causation of joint-bodies, external violence either of a direct nature, such as that attending bumps, blows, falls, etc., or of an indirect nature, such as forcible muscular or ligamentous contractions, energetic torsions, efforts, strains, etc., appear to be the main etiological factor. Indirect injuries are commonly due to movements productive of abnormal

pressure or great traction on osseous or cartilaginous bone ends.

The etiological influence of trauma in elbow-joint bodies, throwing a ball,³² wielding a club (hockey, golf, ball-bat, etc.), is evidenced by the fact that the right elbow is three times as frequently the seat of joint-mice as the left. In the elbow cases, it is stated:

That a history of trauma was absent in fourteen cases.

That a history of trauma was present in twenty-seven cases. In these twenty-seven cases, the causative violence was:

A sprain of upper extremity.....	1 case
A fall upon outstretched hand.....	2 cases
A dislocation of elbow (Martens).....	2 cases
The throwing of a stone, of snowballs.....	2 cases
A fall upon elbow.....	8 cases
An elbow injury.....	12 cases

Among forms of violence productive of knee-joint bodies, we find the following:

Jumping	8 cases
Blow upon knee.....	16 cases
Sprained knee	16 cases
Injury to knee.....	46 cases
Fall upon knee.....	56 cases

In a few cases, a history of more than one injury is obtained.⁵⁰

It has been amply demonstrated that trauma, slight or severe, may break off chips of articular cartilages and underlying bone without inflicting necessarily serious injury upon other portions of the joint. Slight force, attempting to avoid a fall, motion carried beyond normal limits, etc., may be the determining factor. The femoral condyles are the most frequent site of origin of traumatic knee-joint bodies.

From the etiological viewpoint, how can we explain the cases in which a history of trauma is not given and in which evidences of arthritis deformans are absent? In some, it can correctly be said that the causative violence was not severe enough to impress itself upon the patient's memory; an accident occurred, was overlooked or has been forgotten.⁵¹

As regards the etiology of joint-bodies, the following facts are demonstrated:

a. One or more osseous, cartilaginous or osteo-cartilaginous fragments may be forcibly detached into the knee-joint from the femoral condyles, tibial tuberosities or patella; may be forcibly detached from any articular surface into the joint

cavity in the formation of which that surface, in part, enters.

b. Organization of blood-clot and resulting formation of a fibrous mass acting as a joint body is a possible sequel of articular hemorrhage, Short.⁶⁰

c. Lipomata originating in the subsynovial fatty connective⁵² tissue may become pedunculated and hang into the joint cavity.⁵³ If the pedicle breaks off at or near its base, the lipoma becomes a free joint-body.

d. Exceptionally the joint-body is a free or pediculated fibroma, enchondroma, osteoma or ecchondrosis. Purely cartilaginous joint-bodies are not common.

e. As a result of injury, a portion of synovial membrane and underlying fatty connective tissue undergoes thickening and induration.³² Should this portion project into the articulation, it will be nipped repeatedly during joint-movements. If the pedicle be ruptured, a loose joint-body results.⁵⁴

f. In the normal state, the synovial membrane fringes may contain nodules of cartilage (Kolliker). Morbid conditions, sprains, irritations, etc., can act as a stimulus to these cartilage cells and cause them to subdivide, multiply and give rise to growths projecting into the joint cavity; if these growths are snipped off by joint movements, loose joint-bodies result.⁵⁵

Joint-bodies may be single, double or multiple,⁵⁶ free or pedicled,⁵⁰ may be present in one, two or more joints, may involve corresponding or dissimilar joints. They may be found in the recesses or other parts of articulations; thus, they have been found to the lateral or mesial side of the patella, in the posterior part of the knee, in the inner supra-patellar pouch,⁵⁷ in the sub-quadriceps cul-de-sac,⁵⁸ etc. Free and pedicled bodies may co-exist in the same articulation,⁶³ or the same patient may present free mice in one joint and pedicled joint-bodies in another. When multiple, joint-bodies are free or adherent to each other⁵⁹ or to some portion of the osseous⁶⁰ or synovial³⁵ articular surface.

In the greater number of cases, only one joint-body is present, in some, two are present,⁶¹ in some, three,⁶² in some, four,⁶³ in some, five, in some, six,²⁶ in others, eight,⁶⁴ in others, ten.⁶⁵

The joint-body or bodies may be free,⁶¹ pedicled

or only partly detached.⁵⁶ The joint-body may be adherent to the synovial membrane, the articular capsule or the bone.⁶⁰

The pedicle may be short or long, vascular or avascular and inserted upon the articular surface at, near to or distant from the site of origin of the joint-body.

Joint-bodies vary in size, shape, and surface characteristics; they may be ovoid,³⁹ oblong, flat oblong,⁶⁶ spheroidal, pyriform, biconcave, biconvex, concave-convex, flattened, reniform, etc. They are pea-sized, lima-bean-sized, olive-sized, pigeon-egg-sized, large chestnut-sized, hen's egg-sized,⁶⁷ etc.

The detached body either remains free or becomes adherent to bone, articular cartilage or synovial membrane.⁷¹

Adhesion of the joint-body to the articular capsule often determines a proliferation of the capsular connective tissue at the site of implantation. This newly formed connective tissue may proliferate into the marrow spaces of the joint-body and close them up, may proliferate partly or completely around the articular body and encapsulate it. Joint movements not infrequently lead to pediculation of the connective tissue bond, and in some cases, to progressive thinning and ultimate rupture of the pedicle thus formed. In experiments on lower animals, the inflammatory proliferation of the synovial membrane may be so marked at the seat of adherence of the joint-body as to lead to encysting and at times absorption of the latter.

For a time, joint-bodies probably are nourished from the synovia by endosmosis.

In osteo-cartilaginous bodies, the regressive changes noted are:

a. Erosion of the living cartilage by infiltrating connective tissue.

b. Degeneration and death of the medulla and osseous portion.²⁵ The outer cartilage cells alone survive and seem to find sufficient nutriment in the articular fluid. In time, the osseous substance may become the seat of calcific deposits.

Joint-bodies from within may be fibrous, lipomatous, cartilaginous, osseous or osteo-cartilaginous in structure, or may show a more mixed character. The joint-body may be partly or wholly surrounded by a connective tissue capsule. Multiple joint-bodies may³³ or may not differ in

structure. Microscopical examination may be necessary. Until our knowledge of the subject is complete, joint-bodies of doubtful nature should be examined microscopically.

The joint-bodies which we studied may be classified, according to structural characteristics, as follows:

<i>a.</i> Fibrous in structure ^{32, 35, 72, 2} , etc.....	11 cases
<i>b.</i> Subserous fat lumps ² or subserous fat swellings ³⁵ ..	6 cases
<i>c.</i> Lipoma, pedicled or non-pedicled ^{73, 74}	12 cases
<i>d.</i> Osteoma	1 case
<i>e.</i> Enchondrosi ³¹	1 case
<i>f.</i> Osseous in structure	15 cases
<i>g.</i> Cartilaginous in structure	103 cases
<i>h.</i> Osteo-cartilaginous in structure ^{28, 75, 76}	123 cases
<i>i.</i> Nature of body not manifest.....	32 cases

The large number of osteo-cartilaginous bodies is explained by the fact that, in by far the larger number of cases, a piece of underlying bone is broken off with the cartilage; the line of cleavage being in the bone and between the bone and cartilage.

In cartilaginous, osseous, and osteo-cartilaginous joint-bodies, histological examination almost invariably shows an absence of blood vessels.

Complete examination of the entire articular cartilage is rarely possible; nevertheless, in some cases, one sees, during the course of the operation, the gap left by the detached joint-body. In knee cases, this defect is commonly situated on the outer surface of the internal femoral condyle in front of and close to the seat of insertion of the posterior crucial ligament.

The defect present at the seat of origin of the joint-body is definitely stated in a few case reports.

SYMPTOMATOLOGY.

Two sets of symptoms call for consideration: First, those referable to the injury sustained by the joint as a whole at the time of the partial or complete detachment of the joint-body; second, those directly dependent upon the joint-body itself. In many cases, the subjective and objective symptoms are so distinct that the condition is easy of recognition. In other cases, the symptoms are either inconstant, mild or difficult of interpretation. Partly detached joint-bodies may persist for years as such, causing at long intervals more or less joint-irritation. Symptoms may be entirely lacking. Joint-locking may be the first symptom.

The symptoms of joint-body proper may first become manifest after the acute inflammatory

symptoms have subsided. In their production, two factors enter: First and foremost, the loose body itself, and to a lesser degree, the circumscribed lesions present at the site of origin of the joint-body.

The symptom-complex is influenced by the mobility, nature, number, pediculation or non-pediculation, size and shape of the joint-body or bodies. The duration of the joint-body's sojourn in the articulation also influences the symptomatology. When the loose body is not dislocated, the symptoms are usually mild. The larger the mouse, the greater its mobility, the greater its surface irregularity, the more severe are the joint-irritation symptoms which it provokes. In general, small, smooth, adherent bodies, and also such as are pedunculated at a favorable site, cause slight disturbance.

I will consider the signs and symptoms of this condition in the following order: Pain and tenderness, joint-effusion, joint-disability, crepitus, joint-locking, direct palpation of joint-body and x-ray evidence of joint-body existence.

Pain and tenderness.—Pain and tenderness are present in a large number of cases and may or may not be associated with other symptoms. They may be constant,⁴⁶ intermittent or present only on attempted motion.

Periods of complete absence of pain may alternate with sudden attacks of joint-pain.⁸⁵

Joint-effusion.—The synovial membrane is fretted by the presence of the joint-body and from this and from the initial trauma an effusion results, hemorrhagic (rarely) sero-hemorrhagic or serous (most always) in nature. In one hundred and twenty-two of the reported cases, it is distinctly stated that a joint-effusion was present. It is a common symptom of this condition, being either constant, intermittent,⁶⁵ or present only after use, moderate or immoderate, of the articulation. It necessarily alters the contour, the attitude and the measurements of the affected articulation. It may be small in amount, or so marked as to float the patella.

Joint-disability.—Joint-bodies are mechanical obstacles to movement, which may or may not produce great pain. Joint-disability is reported as marked impairment of function in ninety-three cases, as joint-weakness, in thirty-four cases, and as limitation of motion, in fifty-one cases. The

joint-body need not interfere with all movements. In the elbow, impairment of motion usually manifests itself as inability to fully extend the forearm (14 cases), in the knee, flexion⁵³ or extension,⁸⁶ or both may be limited. Motion may be painful but not hindered.

Crepitus.—Crepitus is a sensation and a sound; one feels and hears crepitus. In eighty-seven of the reported cases, it is said to have been distinctly elicited. It occurs in cases in which the joint-body is single, multiple,⁸⁷ free or pedicled; in the shoulder, elbow, knee and other articulations; upon movement of the joint, of the mouse or of both. It may be provoked by all joint-movements⁷⁶ or by only certain movements, as pronation and supination in the radio-humeral joint. In all cases in which the presence of crepitus is reported, the joint-body or bodies present were cartilaginous, osseous or osteo-cartilaginous in nature.

Joint-locking.—Attacks of acute severe, excruciating pain associated with joint-locking, constitute one of the most pronounced symptoms of this condition. It occurs irrespective of the nature of the joint-body. The pain is so severe that not infrequently the patient is nauseated and faints.⁸⁴ Attacks of joint-locking, more or less severe, of greater or shorter duration, occurred in sixty-nine of the reported cases.

It has been demonstrated and emphasized that a chipped off piece of bone, cartilage, or bone and cartilage, severed from all connections may wander freely about in the joint, may retain some connection with its site of origin, or may form new connections within the articular apparatus. In cases of adherent joint-mouse, the joint function may be normal for years until the body suddenly becomes loosened, the joint locked and acute inflammatory symptoms set in. This joint irritation, if it lasts only a few seconds, does not much impair the function of the involved articulation.

DIRECT PALPATION OF JOINT-BODY.

Should the clinician palpate one or more joint-bodies in the affected articulation, the diagnosis is clinched. Palpation informs the surgeon as to size, number, surface characteristics and degree of mobility of joint-mice. In one hundred and seventy-five cases, one or more joint-bodies were palpable before operation. In most of the cases only one body was palpated (130 cases), in

some, two bodies,⁸⁹ in others, three,⁹⁰ in a few,⁹¹ etc.

Joint-bodies are very elusive; they are not always located at the same spot, being now at one point and now at another. In many cases, they can be palpated at all times; in a few, only after the withdrawal by aspiration of the joint-effusion; in others, only in certain positions of the articulation. When multiple, all or only one or more of the joint-bodies may be palpable.

Inability to palpate a joint-body does not exclude its existence.

A palpable joint-body may be immovable, slightly movable or very movable. It may be movable in all directions or only in one direction.⁹⁴

DIAGNOSIS.

Roentgenography⁹⁵ is most valuable for the diagnosis of joint-bodies. Its value is dependent to a great degree upon the ability of the radiographer to take and interpret negatives. The x-ray examination should include both an anteroposterior and a lateral view. Joint-bodies containing no calcific deposits or no osseous foci do not cast a shadow upon the x-ray plate.

Negative findings upon the x-ray plate do not, if other symptoms are fairly conclusive, contraindicate operation. We should all be believers in the x-rays, as a confirmatory agent of, but not as a substitute for, the physical examination, because:

a. The x-ray plate may be negative and nevertheless a joint-body be present.⁹⁸⁻⁹⁹

b. The x-rays and the operative findings frequently do not coincide.

c. Errors of interpretation have occurred. A sesamoid bone may be mistaken for a joint-body. For instance: A sesamoid bone in the outer head of the gastrocnemius muscle.

Differential diagnosis.—In the differential diagnosis of this condition the difficulties encountered are due to various reasons:

a. The causative violence may not have been sufficiently severe to leave a lasting impression upon the patient's memory.

b. The condition may not come under the surgeon's observation in the early stage; therefore, one at times is in doubt as to whether an existent joint-body is primary in nature or secondary to a pre-existing or co-existing joint affection.

c. In the absence of an exploratory incision, the interior of a joint cannot be inspected.⁴¹

d. Radiography may fail to make the case clear.

Joint-bodies give rise to symptoms that are not infrequently misinterpreted. Able men have misdiagnosed the condition. The condition has been diagnosed "a displaced internal semilunar cartilage,"⁸⁴ "acute synovitis,"⁹⁶ "rheumatism."⁸⁶

It is not always easy to diagnose the number of joint-bodies present. One may diagnose one joint-body and at operation find several.^{41, 80}

A joint-effusion calls for interpretation. Is it primary? Is it secondary? If secondary, secondary to what? To the presence of a joint-body? The palpatory findings are all important. The detection of a palpable joint-body, movable or immovable, makes the diagnosis self-evident. Joint-locking occurs in only one other common condition: partial or complete detachment of one or the other, almost always the internal semilunar cartilage. In the latter condition, the pain is most marked over the interarticular line.

A partly or completely detached semilunar cartilage calls for an arthrotomy as a preliminary step to its proper fixation or removal. All free or pedicled joint-bodies call for an arthrotomy, as a preliminary step to their operative removal. Since both conditions call for opening of the synovial cavity, failure to differentiate one from the other, is not a disastrous nor even a very significant mistake.

TREATMENT.

In all cases of joint-body herein considered, the involved articulation was opened. In almost all the cases, one joint-body was removed; in the remaining, two or more were extracted.

Patel⁶¹ in his case, used neither local nor general anesthesia. In twelve of the reported cases, the operation was performed under local anesthesia: Schleich's infiltration anesthesia,⁵⁴ cocaine,^{35, 98, etc.} In Nast-Kold's⁹⁶ case, the local anesthetic used is not stated. Most, practically all, operators had recourse to general surgical anesthesia: Billroth's mixture⁸³ rarely, eloloform, exceptionally,¹⁰⁰ ether, generally. Kirschner⁵⁹ used lumbar anesthesia.

For the operative removal of joint-bodies, we subject, in the absence of contra-indications, our patients to general surgical anesthesia employing

either nitrous oxide-oxygen or sulphuric ether anaesthesia, initiating the latter by nitrous oxide gas.

The removal of joint-bodies, be the latter free, adherent or pedicled, is an operation of short duration which can be further simplified by securing a bloodless operative field. The elevation of the limb and the use of an Esmarch bandage and constrictor, obtain this desideratum.⁸⁷ As soon as the joint-bodies have been removed (one must be careful not to overlook any), and before suturing the capsule, the constrictor is removed.

The following tabulation states the nature of the operation performed by the various operators. The operations are classified, somewhat arbitrarily, I admit, into typical and atypical ones.

ATYPICAL OPERATIONS.

1. Opening of intercarpal joint by a dorsal incision; removal of joint-body³².
2. Resection of head of humerus owing to a co-existing habitual subluxation; removal of joint-body³².
3. Resection of head of femur close below the trochanter major (femoral head was loose body)³⁷.
4. Opening of knee-joint; removal of a sub-synovial lipoma and fixation of stump to external surface of articular capsule⁷⁹.
5. Incision into knee-joint; removal of joint-body and of portion of synovial membrane to which the pedicle was attached⁵⁵.
6. Infra-patellar transverse division of ligamentum patella; opening of knee-joint; removal of one joint-body¹; removal of three joint-bodies⁹⁰.
7. Transverse division (sawing) of patella; opening of articulation; removal of joint-body or bodies.
8. Four-inch incision on inner side of knee, then counter-incision on outer side of knee; removal of joint-body⁸⁹.
9. Unilateral arthrotomy: Ten cm. long incision in popliteal space centering over the joint-line and slightly inside of the median line²⁹. In one case the posterior incision was supplemented by an anterior incision.
10. Opening of knee-joint; removal of loose fibrous body and curettage of sessile masses present on synovial membrane¹⁰¹.
11. Unilateral arthrotomy failed to find joint-body; a few weeks later another arthrotomy was performed and the joint-body removed⁴⁶.
12. Multiple incisions—two incisions on each side of the ligamentum patellae⁹¹.

TYPICAL OPERATIONS.

1. Unilateral arthrotomy and removal of one joint-body—224 cases.
2. Unilateral arthrotomy and removal of two joint-bodies—14 cases.
3. Unilateral arthrotomy and removal of three joint-bodies—6 cases.

4. Unilateral arthrotomy and removal of four joint-bodies—3 cases.

5. Unilateral arthrotomy and removal of five joint-bodies—3 cases.

6. Unilateral arthrotomy and removal of eight joint-bodies⁴⁴—1 case.

7. Unilateral arthrotomy and removal of several joint-bodies—5 cases.

8. Unilateral arthrotomy and removed from each joint a clump of fat—5 cases.

9. Bilateral arthrotomy¹⁰² and removal of one or more joint-bodies from each joint (knee)—8 cases.

Boecker⁶⁸, at the same sitting, operated to cure a co-existing habitual dislocation of the patella.

10. In a few cases two or more operations were performed by the same operator. Unilateral arthrotomy—at first operation, removed one body. At second operation, removed another body—8 cases.

11. Unilateral arthrotomy⁴—At first operation, removed one joint-body. At second operation, removed another body. At third operation, removed another body.

12. Unilateral arthrotomy⁹¹—At first operation, removed three bodies. At second operation, removed one body. At third operation, removed another body.

For the removal of joint-mice, select an incision giving easy access to the joint-body or bodies present and inflicting the minimal amount of trauma upon the periarticular structures. The position of the incision is largely determined by the location of the body or bodies to be removed. It is generally longitudinal. Joint may be opened directly over mouse. For the removal of knee-joint bodies, some operators make an incision to the inner side of the patella, some to the outer side.¹⁰³

As stated above, some operators used radical procedure: Complete division of the ligamentum patellae, complete transverse sawing of the patella, long incisions, multiple incisions, incisions on both sides of patella, etc.

Our experience leads us to think that the procedures just enumerated are needlessly harsh and are rarely, very rarely, indicated. We advise for arthrotomies the employment of incisions parallel to the long axis of the limb, and in suitable cases, made preferably directly over the joint-body itself. In the knee, make your incision, if not directly over the joint-body itself, to the inner or to the outer side of the patella. On the inner side of the knee are present the thick muscular fibres of the vastus internus. If adapted to the case at hand, an incision external to and above the patella, parallel with the fibres of insertion of the vastus externus is the incision of election. When

possible separate and do not divide muscle fibres. Avoid incisions calling for transverse division of muscular and ligamentous tissue.

There is one exception to this rule. A joint-body in the posterior part of the articulation, cannot, owing to the narrow communication between the anterior and posterior portions of the capsule commonly be removed by means of an anterior incision, unless one cuts through the lateral ligaments. This is to be avoided. In such cases, place your patient in the ventral position and use a posterior incision. Brackett & Osgood and others have used this method and speak highly of it. The length of the incision varies with the articulation and with the number and nature of the joint-body or bodies to be removed. An incision should be no longer than is necessary to meet the indications present in the individual case; it should inflict the minimal amount of tissue injury consistent with easy removal of the joint-body.

Upon incision of the synovial membrane, the joint-effusion escapes. In cases in which the joint-body or bodies are pedicled, the pedicle has to be cut. Pedicles are vascular or avascular; usually, the latter. If small and non-vascular, division without ligature suffices. If small and vascular, ligate. The larger pedicles should be transfixated and ligated. Should a pedicle stump bleed, either throw a ligature around it, or better still, transfix it with a ligature and ligate the ends around it. Oozing pedicle stumps have given rise to hemarthrosis.

Joint-bodies are removed with ease or with difficulty. In some cases, upon opening of joint, the body pops out.^{66, 85} In one case, being unable to find the joint-body, I flooded the articulation with normal salt solution and thereby washed out the body.

Joint-lavage.—Healthy joints do not call for irrigation. All irritation of joint-endothelium must be avoided. Joint-irrigation was practised only by a few operators. Irrigation of the peritoneal cavity as a prophylactic to peritonitis has been abandoned. Irrigation of the pleural cavity in the treatment of empyema is meddlesome; it has no curative value. Joint irrigation is no preventive of arthritis. It waterlogs the tissues; it lowers tissue resistance; it serves no useful purpose, it delays recovery. We advise that it be not

practised. Clean operative wounds do not call for irrigation. Why irrigate normal articulations?

Joint-drainage.—Joint-drainage frequently results in partial or complete ankylosis. It is said to have been used in eleven cases.^{2, 61, 89} It delays healing. Its use is frequently followed by limitation of motion, by ankylosis. The more prolonged and thorough the drainage, the greater the probability of consequent ankylosis of the articulation. A non-infected joint does not call for drainage. Even in metastatic septic arthritis, far better results are obtained by repeated aspiration of the joint-effusion and intra-articular injection of a modifying antiseptic solution, such as a 2 per cent formaldehyde solution in glycerin (Murphy), etc., than by drainage. "The rule to drain in all such cases (septic infection of joints) is open to many objections, chief among which are the danger of infection through the opening and the increased liability to form adhesions opposite the track of the drain."¹⁰⁴ Clinical experience has led us to abandon intra-articular drainage in aseptic joint operation.

Immediate closure of articulation.—Immediately after the removal of joint-mice, the joint-capsule and the divided overlying peri-articular tissues should be reunited. The synovial membrane and capsule are closed with catgut (Chaput used fine silk) and the overlying tissues with removable non-absorbable suture material.

In the cases under consideration, it is desirable though not essential that the operated joint be immobilized and that its articular surfaces be pulled apart. Secure fixation of limb by the application of an anterior (rarely), posterior (generally) plaster-of-paris splint moulded to the extremity. The splint should be of sufficient length to prevent all motion in the operated joint. To immobilize the knee-joint, the splint should extend from about 2 inches above the malleoli to within two inches of the perineum. By making extension on the distal segment of the limb, one can secure the desirable separation of the articular surfaces. Thus, the desired separation of the articular surfaces of the knee will be obtained by making moderate extension on the leg. Joint-extension and fixation are continued from five to eight days, during the period of early tissue healing.

Active and passive motion and massage are em-

ployed as needed. Massage is an art and its therapeutic value is proportionate to the technical skill of the masseur. Spare the joint from all overstrain for a month, gradually returning to ordinary active exercise. Time is thereby given for firm organization of scar tissue.

RESULTS.

All the patients recovered from the operation. The local anatomical and functional results were:

1. Not definitely stated, 20 cases.
2. Very bad (², ²⁶), 3 cases.
3. Unsatisfactory, 25 cases.
 - a. Recurrence, 1 case (²).
 - b. Stiff joint, 1 case (⁸⁴).
 - c. Impaired motion, 23 cases (², ³⁷, ¹⁰², ¹⁰⁵).
4. Fair, 7 cases.
 - a. Some impairment of flexion (¹).
 - b. Extension up to fifty degrees (²).
 - c. Flexion to about thirty degrees (⁶⁵).
 - d. Flexion to about forty-five degrees (⁸⁰).
 - e. Flexion to about ninety degrees (², ⁸⁰).
 - f. Cannot bend knee beyond 130 degrees (⁶³).
5. Full recovery, 212 cases.

In analyzing the results, we first note the important fact that there were no operative deaths. In a large majority of cases non-operative treatment was tried and after being found inappropriate, valueless, harmful, operation was resorted to. In the treatment of primary joint-bodies, it is generally recognized that non-operative measures are not curative. They prolong the patient's local suffering and disability; they indirectly lead to or aggravate existing articular changes. Repeated attacks of joint-locking usually lead to permanent hydrarthrosis. Chronic joint-effusions can disturb to an irremediable degree the anatomical integrity of joint-structures.

There are two cases of joint-resection and one of joint-resection and thigh amputation necessitated by post-operative suppurative inflammation. Post-operative suppuration occurring in clean operative cases is humiliating, is discreditable to the surgeon. We are of the opinion that nowadays it does not and should not occur in the practice of competent aseptic surgeons.

The unsatisfactory and the moderately fair results obtained, occurred, with few exceptions in the practice of men who had made use of joint-irrigation or joint-drainage or both.², ⁸⁰, ¹⁰⁵

In the large majority of cases, over two hundred, joint-body removal was followed by restoration of anatomical and functional integrity.

With such results before us, no one should be allowed to go about suffering from loose or pedicled joint-bodies. Operation cures the condition and is followed in a large majority of cases,

sooner or later, by complete anatomical and functional joint-integrity.

It can be asserted that joint-bodies originating within the organism:

1. Occur in joints otherwise normal or presenting only such anatomical changes as are secondary to the presence of the joint-body or bodies therein contained.

2. Occur in joints, the seat of (congenital or acquired) pathological states having no relation, either as cause or effect, to joint-mice.

3. Can co-exist with various articular lesions due to the same causative violence, or secondary either to joint-body irritation or to totally distinct and independent causes.

4. Occur at all ages, in both sexes, in the white and colored race. They are met with maximal frequency in the male sex and during the third and fourth decades of life.

5. Are single or multiple, free or pedicled, and involve one or more similar or dissimilar joints. They may co-exist with extra-articular bodies and with various pathological conditions of peri- and extra-articular structures.

6. Vary as to nature, shape, size, mobility, surface characteristics and as to relation to articular bone ends and synovial membrane. All undergo, sooner or later, degenerative anatomical changes. All, irrespective of origin, determine, sooner or later, degenerative anatomical changes in one, or more, or all the structures constituting the joint.

7. Violence is the first and foremost etiological factor. It may be direct (bumps, blows, falls, etc.), or indirect (torsions, efforts, sprains, strains, etc.), slight, moderate or severe, and cause, in addition to the joint-body, other articular and peri-articular injuries. In exceptional instances, joint-bodies are the result of inflammatory and of neoplastic processes.

8. Organized blood-clots excluded, joint-bodies are composed of one, two or more of the constituent tissues of the joint. They are of a fibrous, lipomatous, esseous, cartilaginous, osteo-cartilaginous or mixed nature. The joint-bodies reported were chips or fragments of bone, of cartilage, of bone and cartilage, masses of thickened indurated connective tissue, organized blood-clots, fibromata, lipomata, chondromata or osteomata.

9. It can be asserted, as to articulation involved, that—

a. No diarthrodial joint is immune.

b. Excluding the joints of the upper extremity, the right and the left-sided joints are involved with about equal frequency.

c. The knee and the elbow are the most frequent seats of joint-bodies; joint-bodies in other articulations are clinical and pathological rarities.

d. They are found over five times as often in the knee as in all the other joints put together.

e. All bilateral cases reported in the literature are knee cases.

10. That joint-body symptoms are referable to three factors: (a) The injury causative of the joint-body. (b) The joint-body proper. (c) The secondary joint-changes induced by the presence of the joint-body.

a. The causative injury determines symptoms of acute articular and peri-articular joint inflammation, symptoms analogous to those occasioned by strains, sprains, contusions, fissures of cartilaginous articular surface, and other joint traumatisms.

b. Joint-bodies proper determine one, more or all of the following symptoms: Joint-pain and tenderness, joint-swelling, joint-crepitus, joint-effusion, joint-disability, joint-locking. These symptoms are merely suggestive of the condition which we are discussing. If the joint-body be palpable, the diagnosis is facilitated. It is absolute if the existence of the joint-body is demonstrated by the fluoroscope or skiagram.

c. Joint-body or bodies determine secondary articular changes and thereby induce symptoms varying from slight to complete joint crippling. Repeated attacks of joint-locking and recurrent hydrarthrosis are responsible to a large degree for the deviations from the normal in contour, attitude and measurements of the affected articulation and also for the impairment of joint-function.

11. That an attempt should always be made to diagnose not only the presence of joint-mice, but also their number, location, nature and other characteristics.

12. Roentgenography is an invaluable aid to diagnose the presence, number, location and many characteristics of joint-bodies. The x-ray examination should include antero-posterior and a lateral view. Joint-bodies may exist though the x-ray plate be negative. If a joint-body from within be not the seat of calcific deposits or contain no osseous portion, it will cast no shadow upon the x-ray plate. X-ray findings have merely a confirmatory value.

13. The only relatively frequent condition which is difficult, at times, to differentiate from joint-bodies, is a partly or completely detached or ruptured semilunar cartilage. This condition also calls for an arthrotomy; therefore, the mistaking of a joint-body for a detached or ruptured semilunar cartilage or vice-versa is not a significant diagnostic mistake.

14. An articulation, the seat of a pathological process difficult of diagnosis, should be radiographed. Often, this will result in establishing a correct diagnosis.

15. An articulation, the seat of a pathological process uninfluenced by the appropriate treatment of the condition thought to exist, should be radiographed. Often, this results in invalidating the diagnosis previously made, and suggests a positive treatment.

16. The presence of a foreign body in an articulation, almost always, leads to joint-effusion, always causes pain, always interferes with joint-function and very frequently determines joint-locking. The presence of a wound of entrance may or may not be discernible. The removal of the offending body or bodies is followed invariably by partial or complete cessation of all untoward symptoms.

17. Cases of joint-bodies are not infrequently unrecognized, misdiagnosed and, as a result, subjected to injudicious and, at times, actually injurious treatment.

18. Primary joint-bodies, irrespective of origin, location, nature, volume, number, mobility or surface characteristics, invariably impair, sooner or later, the anatomical and functional integrity of the articulation which harbors them.

19. Joint-bodies should invariably be removed by an open operation, using that incision

which gives best access to the joint-body or bodies, and which inflicts the minimal amount of permanent injury upon the peri-articular structures. Chronic synovial effusions are dangerous to the integrity of the joint and justify the very slight risks which attend modern aseptic methods.

20. In penetrating gunshot articular wounds, the projectile may remain free in the articulation, may be fragmented or be wholly or partly imbedded in the bone. It will cause disturbances analogous to those characteristic of joint-bodies originating within the organism. All foreign joint-bodies, missiles, needles, etc., call for removal.

21. Important operative points are:

- a. General anesthesia.
- b. Use of an Esmarch constrictor which is removed immediately after ablating the joint-body and before suturing the capsular wound.
- c. Incisions parallel to the long axis of the limb.
- d. Location and length of incision determined by the site, size and number of the joint-bodies.
- e. Removal of joint-bodies by aid of instruments. Intra-articular manipulation should be reduced to a minimum.
- f. No joint-irrigation.
- g. No joint-drainage.
- h. Separate suture of capsule and cutaneous wounds.

22. The removal of joint-bodies is an operation of great simplicity, having no morbidity and no mortality. If an arthrotomy be performed with aseptic precautions, the risks to the articulation, immediate or remote, are nil.

23. The removal of joint-bodies is followed by more or less complete anatomical and functional recovery. In cases of long standing, the return of complete functional integrity is not always immediate.

24. No one should be allowed to go about suffering from primary loose or pedicled joint-bodies. Operation cures the condition and in a large majority of cases leads, sooner or later, to a complete return of anatomical and functional integrity.

HYPERTHYROIDOSIS.*

Exophthalmic Goiter.

A. AUGUSTUS O'NEILL, Ph. D., M. D.,

CHICAGO, ILL.

Surgeon in Chief Columbia Hospital.

Variously described and named as Morgagni's disease, Parry's disease, Moebius' disease, Graves' disease and lastly Basedow's disease, instead of being confined to a name indicative of a definite pathological designation. It is true that exophthalmic goiter refers to one of its most prominent symptoms, but with increased knowledge of this subject, it too becomes insufficient, and for this reason I would wish to clarify the literature of this subject and introduce the term hyperthyroidosis. Hyperthyroidism, rightly speaking, would refer to a system or doctrine, so that in dealing with a theory of thyroid influences and manifestations, thyroidism would be a proper term, but the patient suffering from the effects of a hypersecretion of the thyroid gland would be in a condition of hyperthyroidosis. The condition to the above two extremes we must discern a this gland would be hypothyroidosis. In addition to the above extremes we must discern a thyrotoxicosis, which should be confined strictly in its application to the so-called toxic goiter. We may have, clinically speaking, toxic exophthalmic goiter and toxic non-exophthalmic¹ goiter, as pointed out by Wilson and MacCarty. The thyrotoxicosis indicating that severe toxic condition, great depression of the patient, degeneration of the heart and kidneys with or without exophthalmos. The condition of hyperthyroidosis, commonly known as exophthalmic goiter, is accompanied by a constant pathological finding, and may be summed up in two words, i. e., hypertrophy and hyperplasia. The pathology of a thyrotoxicosis is as yet not well worked out beyond the fact of a supposed faulty metabolism dealing with iodine storage and iodine conversion, and has some relation to the regeneration¹ supervening upon the atrophic condition of the acini and parenchyma.³

The exciting cause of these pathological changes is not known: the toxine or infection however, seems to be mostly conveyed in the drinking water. The boiling of this goitrogenous

*Read at meeting of Chicago Medical Society, Feb. 4, 1914.

water renders it harmless. Intestinal excretions from patients suffering from acute goiter added to sterile water has produced exophthalmic goiter in goats.²

The interrelations existing between certain infections, intestinal intoxications, the intoxications of pregnancy and thyroid activity would seem to establish a relationship of cause and effect, and that the beginnings of such thyroid activity would indicate a defensive rather than an offensive action of the gland: a defensive functional activity due to over stimulation resulting in various forms of hyperactivity resulting in degenerations as a consequence of a break or an outriding of physiological coordination, and here again in making such statement we are conscious of the possible sophism of "non causa, pro causa."

When we consider the thyroidation as a possible defensive action combating results of infections and intoxications, the early acute hyperthyrosis should be allowed a certain period of such activity and not until the condition of a hyperthyroidosis with perhaps the added thyrotoxicosis, should surgical intervention be considered. Right here is the medical side of the question which must not be carried too far nor the pathological rest period with improvement of clinical symptoms be confounded as results of certain concomitant medical treatment thus committing the material fallacy of "Post hoc, ergo propter hoc," and this misinterpretation encouraging a medical procrastination with grave consequences.

The surgical treatment of exophthalmic goiter, or hyperthyroidosis, should be divided into the preparatory, the operative and the post-operative. Perhaps in no surgical undertaking is there so much draft upon the knowledge and experience of the surgeon as, first, to decide that an operation must be performed, and, secondly, when to perform it. That considerable care and experience is necessary to decide that there is a condition of hyperthyroidosis present, we know from the frequent discussions and disagreements between physicians and surgeons of known ability. The classical symptom complex of hyperthyroidosis is not at all invariable, and frequently so changed in its predominating signs and so dissimilar in its subjective symptoms that an error can be easily made unless the most careful scrutiny and

analysis is brought to bear upon the cases of irregular manifestation. Having determined that a case is one of hyperthyroidosis, which is the question of the evening, there is but one treatment which is safe, sane, and attended with good results, and in the hands of the experienced operator, attended with a very insignificant mortality, and that is surgical treatment.

The success of the surgical treatment depends first, upon the preparation of the patient: the mental condition, the condition of the heart, the condition of the nervous system, and quite as important as the foregoing, the digestive system. In the mental we may have all degrees of change from simple excitability to grave mental disturbances, and insanity: with the heart from increased frequency to a pronounced tachycardia with degeneration of the heart muscle and changes in the entire circulatory system; in the nervous system from a hyper-sensibility and a neurasthenia to that extreme tremor and excitability which when coupled with the mental and cardiac acting and interacting upon each other may present to us all degrees of this disease from the slightest manifestation to that very grave picture of the half crazed, hunted, excited and trembling wrecks with bulging eyes and pink skins, vomiting and diarrheal, gasping for breath in continual tumult and anxiety. No experienced surgeon will today operate upon these extreme cases without resorting to the various means to reduce these dangerous symptoms.

First of all, by rest in the horizontal or semi-sitting position, careful and easily digested diet, medical treatment to modify the mental, the nervous, the circulatory, and lastly, and important, the digestive system. Some of the cases require periods of rest from a week to months, during which time the patient is carefully watched and a study made of any vital changes taking place, and to determine whether these changes are favorable or unfavorable to the patient, and in what particular. It not infrequently happens that with all this care the patient may be making little or no progress, in fact getting ready to slide away unless something beyond the medicinal treatment and rest is resorted to, as the ligation of one or more thyroid arteries, or as I have done in one very severe case tunneled the gland under cocaine anesthesia, carrying through

a capillary drain. I prefer the ligation to reduce the thyrotoxicosis and hyperthyroidosis. The condition of the heart is perhaps one of the most important considerations. At first a tachycardia with normal or high blood pressure, which is soon followed by the more risky condition of a very irregular uncountable, intermittent and fluttering pulse, with low blood pressure, indicating a profound weakening of the heart, and especially if this is coupled with a freely perspiring wet skin, and perhaps an albuminuria indicating a very extreme toxicity.

It is in this condition I have many times by means of ice bags to the heart and neck for as long as two or three weeks at a time, and with small doses of belladonna and intestinal antiseptics, finally succeeded in bringing the patient to the port of safety for operation. The gastro-intestinal crises of hyperthyroidosis are of considerable import and operation must not be performed during one of these periods, or if an attack seems to be on the way, or as pointed out by Mayo,¹¹ we are very apt to have a fatal termination. The mental symptoms must be brought under control as far as possible for its known influence on the nervous system, and for which purpose I have found bromides with or without either hyoseyamus or belladonna to be of service. Each case must be weighed up by itself and this is one department of surgery where the patient cannot be scheduled ahead to be operated upon on a certain day or handled by the ever-changing interne or nurse who happens to be assigned from day to day, thus interrupting the continuity of attention and responsibility which should be reposed in one or two persons, from whose observations, coupled with that of the surgeon, becomes the basis of establishing a state of vital surgical safety. It is not an infrequent occurrence with the writer to have decided to operate and then postpone a dozen times in a single patient, carefully summing up the vital powers, not the night before, but the hour before the time of operation, and even the kind of day and the thermometric and barometric conditions of the day as bearing upon the patient's condition.

The foregoing period of rest and therapeutic palliation, and I say therapeutic palliation with a sharp sense of discrimination, as I am con-

vinced that the medicinal treatment which is only palliative at best, and sometimes injurious through delay, should be for as brief a period as would enable us to arrive at this period of vital surgical safety.

Having determined that we have our patient in a condition of vital surgical endurance, we must then proceed to the surgical treatment which stands out preeminently above all other known modes of treatment in its promptness of relief, in its effects, and in its mortality. If there is one thing which has proven a failure by a century of observation on the part of the best minds in the profession, it is the incompetency of medical treatment to cope with the complexus of hyperthyroidosis and its far reaching secondary destructive effects.

In resorting to surgical treatment, we have first to consider the question of anesthesia, which may be local or general. As there is so much divergence of opinion in the selection of the anesthetic, will merely state that the writer uses morphin and scopolamine grain 0.25 and 0.01, half the dose given two hours before, and the other half of the dose one hour before the time of operation. The influence of the scopolamine on the mental functions of the patient is very desirable in that it removes all sense of fear, and not infrequently patients walking into the operating room and mounting the table themselves, have no memory of when they went into the operating room, or details of preparation, materially lessening the possibility of mental shock. If in addition to this we determine upon a local anesthetic, I use endermic injections of novocaine, which I find very efficient, which with the above secures a sleepy patient and a dry unobstructed throat. If general anesthesia, I use the same morphin-scopolamine and ether. I have found either one of these methods sufficient in all cases. In a recent case of the writer, the morphin-scopolamine and about 20 CC's of the novocaine solution were found sufficient to remove a large goiter weighing 480 drams, a large portion of which was substernal.

I deem it unnecessary to detail the steps in the technic of the operative procedures, as the general lines are so well established, though modi-

fied by the individuality of the operator in their application to the various forms of goiter.

It is needless to say that in the surgery of hyperthyroidosis, gentleness of handling and delicacy in all the manipulation is essential to a successful outcome. Today the operation for the removal of goiter should be practically bloodless, and the majority of my cases have not lost more than two drams of blood. Probably the most common cause of operative mortality is hemorrhage causing shock, and next increased absorption from the remaining badly bruised thyroid⁷ structure, producing a fatal thyrotoxicosis,² especially if there has been a lack of proper preparation of the patient and an awkwardly or improperly administered anesthetic. Perhaps a failure to nicely discern that we have our patient in a condition of vital surgical tolerance, has no doubt accounted for the high mortalities of the past.

The points of procedure at present seem to be well settled, though many pathological questions and physiological intricacies of the thyroid gland in its bearing upon other glands and functions remain to be worked out; but the condition of hyperthyroidosis in a practical sense is now so well understood by the surgeon and the grave consequences of an uncorrected hyperthyroidosis leading to the extensive degeneration of the heart, nervous system, kidney, spleen and liver, that one point stands out in the clearest light, and that is that exophthalmic goiter should be operated upon early and before the secondary serious consequences shall have occurred. It is nonsense to expect that where a hyperthyroidosis and a thyrotoxicosis have ravished the system for years and the patient still surviving, that a thyroidectomy will restore the organs which have undergone consequent degeneration nor confuse these degenerations as a continuing hyperthyroidosis. It is not the hyperthyroidosis which remains, but the irrecoverable damage sustained by the nervous system which has now become a neurosis with a heart degeneration, but it is very remarkable what a great improvement takes place even in these extreme cases. In the cases operated upon within the first two or three years, the result of a thyroidectomy seems little short of magical, the patient gaining in weight, the heart slowing down and becoming firm, the patient becoming a

normal well being. It must not be forgotten that a neurosis once established is never completely disestablished and my familiar maxim, "once a neurotic always a neurotic," is certainly true, though lessened in a degree.

Exophthalmus if long continued may not be fully corrected and slight protrusion may remain, and in some extreme cases there seems to be a change in the bony structure. The protrusion of the eyeball takes place in the acute conditions in about 80 per cent of the cases, which has been explained to be due to the contraction of the non-striated muscular fibers responding to the same stimuli as the heart; these fibers connect the circumference of the eyeball to the orbital fascia, the contraction being sufficiently great to dislocate the eye forward from this diaphragm which malposition continued for any length of time fails of full correction. An operation may be done, however, to correct at least the apparent protrusion. In one very severe case after the hyperthyroidosis had continued with extreme severity, the well-shaped nose of the patient collapsed into a soft mass, on examination of which no bony structure was found save cartilage in the greater portion of the nasal bone which was simply bent in together with the nasal septum. The osteomalacia was probably due to a disturbance in the pituitary, suprarenal and parathyroid glands, which association however, is uncommon and thus far no definite relationship is established.

The duty of the physician is clear when once the condition of hyperthyroidosis or thyrotoxicosis is recognized; to advise an early operation, as the mortality in the hands of a careful surgeon is not more than the mortality of appendicitis or about one per cent. The writer has performed a first consecutive series of eighty-nine cases without a death, and a series of one hundred and thirty-four cases with but one death, and the latter series not yet closed.

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many cases they were unaware of the condition until their attention was called to it in this examination, in other cases the presence of an enlarged gland was disputed and denied by the individuals who were, in all cases, referred to their family physician for confirmation of the diagnosis, further advice and treatment. This large percentage of thyroid enlargement which has been apparent to me for several years in Chicago and which has been, according to my observation, increasing slowly but gradually during the past few years, would apparently point to some condition in this vicinity as a responsible etiological factor. Attention is particularly called to the seven cases occurring among women of the colored race in whom the question of etiology, so far as any European heredity is concerned, can be eliminated, and also to the relatively large number of cases among the Irish or those of Irish descent.

The writer makes no attempt to discuss the etiology nor has he any suggestion to make as to the treatment of these cases. He does, however, desire to invite attention to the undoubted increasing prevalence of this condition and to the fact that the laity is apparently unaware of it, and to the further fact that many members of

ognize such cases and call attention to the condition when the individuals come under their observation for this or other reasons.

This condition has also been found to be much more frequent in males than is generally supposed, although not as frequent as in females; and while I have been unable owing to lack of time to compile all of my statistics, my observations would lead me to believe that the relative increase of occurrence is the same. One reason why this increased prevalence in men is not more apparent is that they pay less attention to a slight enlargement of the neck, being prone to neglect the cosmetic appearance and usually wearing high neck bands and collars, knowing less about this condition on account of less discussion among themselves of ordinary ills and ailments, and who usually do not consult a physician unless injured or when they have some marked subjective symptoms, and are, therefore, harder to convince of the presence of this pathological condition.

The following tables covering an examination of 350 candidates for the same position (193 men and 157 women, show a percentage of occurrence of goiter of 6.72 per cent. in men and 20.38 per cent. in women:

SERIES II.—GOITER IN MEN (193 EXAMINED).																													
Nationality—	Age.																								Total.				
	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	45	48		51			
U. S. A.		
German	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	1	..	..	..	4		
Russian	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1		
Irish	2	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	5		
Swedish	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1		
Polish	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1		
English	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1		
Total	2	1	2	1	2	..	..	1	..	2	..	..	..	..	..	..	..	..	..	1	..	1	..	13		

SERIES II.—GOITER IN WOMEN (157 EXAMINED).																													
Nationality—		Age.																											
		19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	45	48				
U. S. A.													1	..	1	1	..	..	1	1	1	..	1	2	..	9	3	
German								1	..														1	..	1	3	2	
Russian						1	..						1	..												10	1	
Irish						1	3	..				1	..		1	..				1	2	1	..				2	2
Scotch															1	..				1	..						2	2
English								2	..			1	..		1	1	..										5	2
Negro												1	..								1	..					2	2
Total						1	1	6	..			4	..	1	3	2	..	1	2	4	2	2	2	1		32	2	2

the profession either ignore an early, slight or moderate enlargement of the thyroid gland until some subjective symptoms cause the individual to seek medical attention, or else they fail to rec-

The cases in Series I. were found in examinations conducted between June 1 and July 31, 1914, and those in Series II. between August 1 and 31, 1914.

SURGICAL CONSIDERATIONS OF THE THYROID.*

JOHN B. HAEBERLIN, M. D.,
CHICAGO, ILL.

In reviewing thyroid considerations of surgical nature one is struck by matured thought of its entire dependence upon our basic knowledge of the gland, viz.: its embryology, anatomy and physiology. This then being our foundation we consider its pathology, its inter-relationship with other ductless glands and the symptoms resultant upon its perverted function. Then, again, our surgical considerations are modified by our medical treatment, and lastly, we are only able to give it surgical consideration after carefully considering and entertaining all the preceding data, they being so inter-related as to be inseparable. Unless all possible knowledge concerning the gland be thoughtfully considered and applied with good judgment our opinions are of naught and our judgment fallacious. So rich is literature on the theoretical conditions of so-called hyperthyroidism, dysthyroidea, thyrotoxicosis, thyroid poisoning, perverted secretion of the gland, etc., that I have limited myself to what I consider proven facts concerning this gland, and will endeavor to eliminate the fantastic theories.

In hyperthyroidism, dysthyroidea and the like it is not known whether our symptom complex, associated with said conditions, be due primarily to a lesion in the thyroid gland, or whether the changes in the thyroid are simply concomitant with the symptoms as they develop. Embryologically the thyroid develops from one¹ to three² rudiments, nuclei or anlage at the base of the tongue, which develop and descend towards the heart. If perchance the descent is retarded or withheld we have a high or sublingual goiter. If the descent is excessive we get our substernal goiter. If the nuclei do not fuse together properly, we get accessory goiters. In its formative passage from its nuclei to its position in the neck, as it occurs in birth, we have sometimes a patent tract which is known as the ductus thyroglossus. Surgically, then, we have the lingual thyroid, the substernal thyroid, the accessory thyroids and the patent ductus thyroglossus; the

midline cysts from the ductus thyroglossus and other anomalous conditions explaining themselves embryologically. The parathyroids³ have their origin from the third and fourth bronchial or gill clefts or pouches, which rotate so as to take the position posterior to the lateral lobes of the thyroid. Embryologically they are apparently not related to the thyroid. Roswell Park considers that they are embryologically related. The rotation of the parathyroids to their posterior position of the thyroid glands is more active in carnivora than in the herbivora,³ so that in meat eating animals we expect to find the gland more intimately associated with the thyroid than in the purely vegetable eating animals. Embryologically the thymus and the parathyroids apparently are intimately associated. Sabotta-McMurrich⁴ states that the first rudiments of the thymus are epithelial and arise from the third pharyngeal pouch or cleft, similar to the parathyroid bodies.

The hypophysis, as we know, is composed of two distinct and separate parts—the pars anterior and pars posterior or pars nervosa. Some have added a “pars intermedia.” The pars anterior arises from the primitive oral sinus and probably is associated embryologically with the thyroid. Experimentally the thyroid and hypophysis have a marked influence on growth, according to Cushing;⁵ they also greatly influence metabolism. The thymus and parathyroids are intimately associated embryologically; their influence is especially on metabolism. Yokoyama⁶ and Adler⁷ have shown that the thymus is antagonistic to the hypertonic action of the adrenals. Clinically we have been shown that frequently we have an inter-related association between the hypophysis and the thyroid. One can see from the preceding data how extremely complicated and inter-related the inter-relationship of the ductless glands are, also the surgical significance of same. One can only stand and hold fast to that which is known and entirely avoid the hypothetic consideration of these glands.

Physiologically what do we know about internal glands, inter-relationship of ductless glands, hormones, and the like?² We have the physiological axiom that with all glands having internal secretion the secretion may be, first, increased; second, decreased; third, altered or per-

*Read before Central Illinois District Society, October 27, 1914.

verted. This perversion may be quantitative or qualitative. Upon this truth all our investigations and results stand. It may be brought about by one secretion or hormone influencing the gland directly or indirectly, or may exist independent of the influence of the other glands. That they do influence one another apparently is proven. The thyroid has a powerful influence over growth. This has been proven experimentally and is also corroborated clinically. Ample proof have we in our cases of cretinism and our juvenile myxedema. Again, counter-related to this we have our conditions of gigantism and acromegaly, probably having its genesis in hypophysis. Again, the thyroid has a powerful influence over sex development and sex life. It is thought by many to be a sex gland. There is unlimited proof of this. It has an influence over the other glands of internal secretion. Tatum⁸ has shown that on experimental cretinism in young rabbits the hypophysis, thyroid and sexual organs seem to be intimately associated and inter-related. The parathyroids, thymus and adrenals also seem to be closely inter-related. This has been shown experimentally.⁶⁻⁷

Removal of the parathyroids results in tetany. This is of great importance to the surgeon. So regularly does this happen that tetany is considered a hypo-parathyroidism. At the Pathological Institute of Vienna there came two patients, one from Professor Kowac's clinic, of tetany adutorum, and the other from Professor Shauta's clinic of tetany gravidarum. Both of these cases showed at autopsy an involvement of the parathyroid glands. This would tend to prove the theory of hypo-parathyroidism. Some experiments seem to prove that there is an increase in the calcium output, with a decreased amount of calcium in the tissues. Others have found this not to be true,⁹ claiming that the relief from calcium administration is due to its sedative effect. Greenwald¹⁰ has shown that there is a phosphorus retention in the parathyroidectomized dogs. Many investigators, especially Koch,¹¹ observed that parathyroids have a special significance on proteid digestion.

From our physiology then we are taught not to disturb these glands of internal secretion. If the thyroid is molested it should only be done under sufficient indications to warrant such procedure.

Again, we have learned that the parathyroids should be especially guarded and allowed to functionate unharmed.

Pathology.—The pathology of the gland has been so accurately determined that Wilson¹² states that by examining the gland microscopically he can determine the clinical stage in 80 per cent of the cases, and the severity of the symptoms in 75 per cent of the cases. Wilson, in reviewing 1,208 cases, states that there is a distinct and typical pathological picture for toxic goiter—toxic exophthalmic and the toxic non-exophthalmic. The toxic exophthalmic type has a true pathological picture, it being a true hyperplasia and primary parenchymatous hypertrophy. The non-exophthalmic toxic type he classifies as a true adenoma or adenomatous goiter.¹³ The pathology of the non-exophthalmic toxic goiter is that of the formation of new parenchyma of the fetal type with an increased secretion and absorption, thus developing our toxic symptoms.

Symptoms.—The old symptom complex of exophthalmos, tremor, tachycardia and enlarged thyroid is obsolete, and if one is not persistent, he will overlook many cases of thyrotoxicosis and dysthyroidea unless he is on the sharp lookout for symptoms due to thyroid perversion. There are latent cases or the *formes frustes* type that are still very difficult of diagnosis. Occasionally we meet individuals with symptoms simulating or masking dysthyroidea, whose etiological factors may be in the nervous system or in the heart, but if one will persistently and conscientiously analyze his symptoms, he will many times be rewarded by a true diagnosis. There are many latent or insidious cases that are true types of dysthyroidea, so far as our knowledge at the present permits. When a patient presents himself with a condition of thyroid involvement, the question arises, how will we best classify him? Plummer¹⁴ has given a splendid classification, dividing them into hyperplastic and non-hyperplastic, and these again divided into toxic and atoxic, the hyperplastic toxic and hyperplastic atoxic, the non-hyperplastic toxic and non-hyperplastic atoxic. I believe a much better classification for the general surgeon is, first, the toxic, and, secondly, the atoxic. Is our goiter toxic or is it atoxic? Have we symptoms of poison from goiter or does it seem benign? If it is

toxic we then have to determine whether or not we have an associated exophthalmos, so that our toxic again is subdivided into the exophthalmic type and the non-exophthalmic type. All goitrous conditions that are not toxic go under the head of the atoxic thyroid, so that our classification seems very simple indeed.* Wilson¹³ has shown us the pathology of these types, and Plummer¹⁴ states that of the hyperplastic atoxic he found only 0.8 per cent. This is the type of gland omitted in my classification. It is my opinion that this latter classification is the better.

What are some of the symptoms of this thyroid toxicity? They may be classified as to their effect, first, on the nervous system; secondly, on the cardio-vascular system; thirdly, on the gastro-intestinal system; and fourthly, the constitutional symptoms.

First, the effects on the nervous system. In these cases some of the earliest symptoms are a mental irritability or undue mental excitement. Many of these patients simply complain of nervousness. We may have mental depression at times. Tremor is usually present. The *tache cerebrale* is usually present. In our latent and insidious cases of dysthyroidea we may have many of these apparently trifling symptoms. Individuals complaining of any of these nerve symptoms should always be scrutinized with the thyroid idea in mind.

Second, the effects on the cardiac vascular system. Here we have tachycardia, frequently myocardial involvement resulting from toxicosis; variation in vessels and blood pressure and later on cardiac insufficiency; enlarged thyroid due to increased blood supply.

In gastro-intestinal symptoms we have the diarrhea, vomiting, jaundice and intestinal complications. Constitutionally we may have asthenia, malaise, loss of weight. We must, however, not forget that tremor, tachycardia, palpitation and slight thyroid involvement, with or without exophthalmos, should put us on our guard as to this condition. The size of goiter has no relationship to its toxicity. We frequently find great toxicity with small goiters and vice versa.

With the foregoing classification it is an easy matter to say whether we have a toxic or non-toxic condition. If toxic is it exophthalmic or non-exophthalmic in type? We have learned that the exophthalmic type is acute and the non-exophthalmic is not so fulminant or more subacute. Plummer¹⁴ has given us the ages of the toxic non-exophthalmic type as 22 years when first noticed, and evidences of intoxication occurring in these individuals at the age of 36.5 years on an average. The toxic exophthalmic goiter, he has pointed out, develops at the average age of 32, and the thyrotoxicosis is so severe that in less than one year they come to operation. This age average is only reliable when a great amount of material is handled. It has been my good fortune to see many goiter cases, and it has been my experience that a well established case of thyrotoxicosis, in which no error of diagnosis entered, usually is best treated surgically. I have seen both the toxic exophthalmic and non-exophthalmic types recover for years under medical treatment, but all these cases have had a change of environment in their life which eliminated worry and gave the patient quiet, undisturbed, restful surroundings. Never have I seen a ease of recovery occur where the old mental worry and severe physical and psychical irritation and exhaustion have kept up.

When one is confronted with a real condition of dysthyroidea, with no mistake in the condition, the surgical treatment in proper hands is far and above the best treatment. Although the surgical treatment has its drawbacks and offsets still, when properly done, it is our sheet anchor in these cases. For several years I was more or less annoyed by the feeling that surgical treatment had its undue risks and unnecessary dangers, and I would ask: How do you know that you have taken out just enough or all of the diseased portion of the gland? And, secondly: How about recurrence? How about the mortality danger and danger of complications? To all these there can only be one answer. Watch results of medical and surgical cases. True enough, surgical treatment has still much to be improved, but compared with medical treatment it is the one that brings us relief. I have watched and observed cases that at the onset I considered ideal for medical care and treatment,

*I Toxic.
 (a) Exophthalmos present.
 (b) Exophthalmos absent.
 II. Atoxic.

both from the patients' physical condition and their environment, and finally would be compelled to operate to give relief to the sufferer.

What are the surgical indications of goiter? First, all toxic goiters are surgical cases. Second, all atoxic goiters that have pressure symptoms, or are ungainly, have a surgical indication. Third, by removing a goiter we prevent the possibility of its becoming toxic. This would be considered a prophylactic operation.

I have purposely left out other surgical indications for operative procedure on the thyroid gland, such as anomalous congenital conditions, cysts, malignancy, etc., as this is irrelevant to the case.

The pathology of the gland teaches us that in the cases where we have toxicity and that toxicity being a menace to the health of the individual, and taking into consideration that we have no means of counteracting and eliminating that toxicity, there remains the one avenue of relief and that is extirpation. This then is a real surgical consideration based on facts, its foundation being pathology and toxicity.

Anatomy and technique.—The thyroid is a single gland of variable size swung over the windpipe, with its lateral lobes nestled in the neck. It is suspended by ligaments attached to the windpipe and has a loose, fibrous, enveloping structure, called Kocher's capsule. The gland is covered by the infrahyoid and infra-thyroid groups of muscles, and has important vascular and nerve structures of the neck on either side. Posteriorly or posterior-laterally we have the parathyroids along with the recurrent laryngeal nerve. In removing the gland especial care should be taken of the parathyroids and recurrent laryngeal nerve. One should have in mind its influence on sex growth and metabolism along with its pathology. Roswell Park¹⁵ states that when the entire gland is removed 70 per cent of these cases develop symptoms. If injury is done the parathyroids, or they be removed by mistake, we may develop symptoms of hypo-parathyroidism. Kocher states that three-fourths of the thyroid may be removed with safety. Mayo states that probably if one-sixth of the gland remains it may be sufficient. One should always bear in mind the fact that the remaining portion may become diseased or atrophied, producing symptoms.

Kocher places the life of complete thyroidectomized individuals at seven years. One must need of necessity bear in mind these things in operative work.

In cases suitable for operation the proper preliminary care is greatly beneficial to the patient. These are cases that usually are irritable, whose sensorium is very impressive and whose afferent impulses become greatly exaggerated. Keeping these cases at absolute rest, with all avoidance of psychical and physical annoyance for a period of time places them so that they become far better operative risks. They should be operated on when possible on the up curve or crest of improvement. The Crile method of preliminary treatment associated with his anoci-association should be faithfully carried out when possible, and it will do much in the difficult cases.

The technique of thyroidectomy is of paramount importance. The improvement in technique during the last ten or twelve years has been very marked. In fact, goiter surgery has been revolutionized in the past score of years. Well do I remember my first few cases of thyroidectomy in which the angiotribe and mass ligature were used. This is still recommended in a modified condition by Kocher, as described in Keen's System of Surgery. Although this may accomplish results, I believe it to be surgically obsolete and invariably results in wound drainage during the healing process. Let me state that a rapid splitting of the infrahyoid and infrathyroid groups of muscles is essential in most goiter operations. Occasionally the splitting of the anterior belly of the omohyoid muscle is necessary, bringing us down to the gland itself with plenty of exposure and room to do thorough surgical work. It is necessary to split muscles high up to avoid disturbance of the nerve supply. Our early efforts in thyroid surgery were seriously hampered by insufficient room. With muscles overlapping the gland on all sides our hemorrhages were terrific. Our work in many cases was unseen and our complications more numerous. The more thoroughly one exposes the gland and sees the technique in each of its steps the more ideal will be the results of operation. The splitting of the sternocleidomastoid, I believe, is rarely necessary. This has been recommended by some in difficult cases.

When the parathyroids and the recurrent laryngeal nerve are not to be found the vessels of the gland are picked up and clamped on either side along the line corresponding to the border of the resection. This resection should leave the posterior capsule of the gland and thus at once preserve the nerve and parathyroids. The goiter is then easily dissected out. With this technique there occurs less than one per cent. of complications of nerve or parathyroids.

To the beginner the vascularity may be a hindrance, but one finds with splendid exposure an equanimity that comes with time that there is little danger.

With the removal of the gland the edges of the posterior capsule are then sewed together with a continuous catgut suture, and if this is done accurately the chances for continuous drainage are slight. The control of hemorrhage in sewing together the posterior capsule should be perfect. Sometimes the control of hemorrhage is much more difficult than at others. However, with free exposure one is not hampered with bleeding coming from some hidden source. If the posterior capsule be left open or some of the colloid material still remain exposed to the surrounding tissue, you practically always get a profuse drainage due to the irritating effects of the colloid substance on the surrounding tissue. So one sees the necessity of accurate technique if one wishes good results. In the pictures I show of operative goiter cases, the scar in many is almost invisible. This is due, I think, to good muscle union, non-drainage, and careful technique of closure.

We have still two types of operative procedure that are being used by some surgeons. They are "the ligation of the poles," and secondly, the compression of the glands. Neither of these is surgically correct. Both are simply palliative and although they modify the circulation in the gland they do not remove the trouble. I have done them both and to me they were unsatisfactory. They are operations which may be done in very little time, which speaks in their favor when something must be done to relieve the patient in these extremely severe cases. They are almost always followed by the classical thyroidectomy later if the patient survives for his second ordeal.

In regard to catgut, I believe the chromic catgut to be irritating and should be discarded. It may be sterile, but the particles left while gut is absorbing, are irritating and may produce slight though sterile necrosis. This I believe holds good in other parts of the body. When we have removed the diseased portion of the gland we need have no especial alarm about the remainder becoming hypertrophied, as Hunnicutt¹⁶ has shown that in partial thyroidectomized dogs the remaining gland has not undergone hypertrophy and hyperplasia. That we have a hormone in the gland with an inter-relation of secretion not many doubt. This should make us the more thorough and more careful in our cases, but it should not exclude our responsibility for doing all that is possible for our patients afflicted with these conditions. We must face the truth and stand fast until some better plan of procedure presents itself. The surgical treatment, therefore, is the one that is best adapted for the relief of these unfortunate patients. Let us hope that we will in the future develop some type of treatment to eliminate the operative procedure in these cases.

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EFFECTS OF GOITER AND RESULTS OF REMOVAL ON THE CIRCULATORY SYSTEM.*

E. P. SLOAN, M. D.,

BLOOMINGTON, ILL.

It seems strange, that with the obvious parallel course of the pathological conditions of the thyroid gland with the well-understood and well-known changes in the circulatory system, that it was so long before their real connection was established.

Any tumor, any degeneration, any irritation

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of the thyroid gland itself, or any disturbance of the circulation of the gland will cause hyperplasia to develop, followed by hyperthyroidism.

According to the old theories, the functions of the heart are controlled by one set of fibres from the sympathetic and one set from the vagus, having opposite functions, one acting as the accelerator and the other as the inhibitor. But after total extirpation of the entire cord and removal of the vagal centers, the injection of suprarenal extract causes the heart to resume its beats. These experiments have shown that the augmentor and inhibitory centers are not stimulated by the suprarenal extract, as was thought. So the suprarenal extract must exercise a stimulating action directly upon the cardiac muscle itself. We find that the veins and arteries contract under its influence. Even an excised one will contract readily for some time after excision if dipped in an aqueous solution of suprarenal extract.

The conclusion is evident that suprarenal extract causes cardiac and vascular contraction by stimulating directly the muscular elements of the heart and vessels, and not indirectly through the vasomotor center. The very marked contractile power that suprarenal extract possesses over the muscular coat of vessels plays an important indirect role in goitre which seems to have been overlooked; i. e. that, as capillaries are not supplied with muscle fibres their walls consisting of endothelial plates, they are not contracted as are arteries and arterioles. When the venous and arterial vessels contract, their capillaries dilate, owing to the increased pressure to which the arterial contraction and increased heart action gives rise within them. Therefore, as the substance of the thyroid gland is made up largely of capillaries, any contraction of the veins, combined with increased blood pressure, by dilation of the capillaries will cause engorgement, and if continued, hyperplasia of the gland.

Experiments prove absolutely that the absorption of oxygen and elimination of carbonic acid in the lungs are not due merely to diffusion of gases but to some active processes at the point of contact of air with blood. "The blood contains," says Schafer, "a substance or substances which greedily appropriate any free oxygen which may be present in the plasma, and are even capable of abstracting the oxygen which is combined with

hemoglobin, so that arterial blood rapidly becomes converted into venous blood, when it is not exposed to the access of fresh oxygen." It seems certain that some substance capable of taking up the oxygen of the pulmonary air, and combining with it and assisting at its final office is present in the blood. So during static engorgement of the gland substance this is what occurs in the blood contained in the gland itself. Just what change occurs is not known, but every operator of experience knows from observations that blood from an engorged gland has undergone some unusual change. This changed blood perhaps causes changes to occur in the gland substance and also stimulates the secretion of more of the reducing agent in an attempt to increase oxidation. Any enlargement of the gland causing pressure on the blood vessels disturbs the venous return more than the arterial supply, because the veins are more exposed and easier compressed. This contributes to blood stasis and engorgement of the gland.

Again the principal role of the pituitary body seems to be to regulate oxygenation, thereby controlling the temperature, and the general temperature is raised by stimulating the anterior pituitary body, which stimulates the adrenals and the temperature of the body is raised by *increased oxygenation*. There seems to be some inhibiting influence located in various parts of the body, but the main inhibitory center seems to be in islands of Langerhans in the pancreas. So we have the adrenals stimulated and controlled by the pituitary gland as the main accelerating influence, and the Islands of Langerhans in the pancreas as the main inhibition centers. It was formerly supposed that the thyroid gland was the main accelerator of the system and the islands of Langerhans the main inhibitors, but very recent observations and studies seem to point to the thyroid gland as the sensor of not only the adrenals and pituitary, but of the inhibiting apparatus as well. The action of the parathyroids seems to be to control the relative activities of these various mechanisms in the presence of infections, poisons, toxins and every kind of degeneration.

I do not mean to be understood as denying nerve and vagus effects in goitre. We certainly have irritation of brain cells and nerve ganglia and frequently a pathological condition of the

ARRANGED ACCORDING TO LENGTH OF TIME SEEN BEFORE OPERATION.

BEFORE OPERATION				AFTER OPERATION																			
Age	Sex	Classification	6 mo.		Duration— years	3 mo.	1 mo.	1 wk.	At opera- tion	1 day	3 days	1 wk.	2 wks.	1 mo.	Apparent general condition at 1 mo.	3 mo.	6 mo.	Apparent recovery	1 yr	2 yrs.			
			B.P.	P.																			
18	F.	1 Non-exophthalmic. Diffuse mental and nervous symptoms	110	54	2	110	54	110	78	110	164	110	168	115	160	120	140	130	140	120	170	120	72
17	F.	2 Non-ex. Diffuse mental and nervous symptoms	106	52	1	115	60	115	50	115	160	150	140	150	140	120	140	110	120	172	120	72	
34	F.	3 Exophthalmic (cystic multiple rt. lobe)	160	170	7	165	140	165	140	160	120	150	140	160	140	100	130	100	130	100	125	80	
39	F.	4 Exophthalmic cystic lobules	190	120	5	120	190	115	190	120	160	160	160	160	160	160	160	160	160	125	80	125	
24	F.	5 Non-exophthalmic cystic lobules	170	160	15	160	150	160	145	155	140	160	140	160	130	140	130	140	130	120	125	80	
44	M.	6 Non-exophthalmic Carcinom	15	210	120	200	120	200	120	200	120	200	120	200	120	200	120	200	120	130	125	90	
23	F.	7 Non-exop. Diffuse—nervous	15	190	120	155	175	120	175	120	170	120	160	115	160	110	160	110	130	125	90		
66	F.	8 Exop. lobular (cystic adenoma calcareous degree)	40	115	72	115	72	115	72	115	72	115	72	115	72	115	72	115	72	115	72	115	
27	F.	9 Exop. lobular	4	185	135	180	130	180	130	180	130	180	130	180	130	180	130	180	130	180	130	180	
42	F.	10 Exop. lobular	10	160	150	140	150	140	150	140	160	140	160	130	140	130	90	130	90	130	90		
34	F.	11 Exop. extreme lobular, cystic deg.	16	140	160	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140	140		
34	F.	12 Exop. lobular	7	140	150	140	160	140	145	140	145	160	140	145	140	140	130	140	130	140	130		
32	F.	13 Exop. extreme. Diffuse	23	135	140	135	160	135	135	135	135	135	135	135	135	135	135	135	135	135	135		
53	F.	14 Non-exop. lobular (chronic)	3	155	140	155	140	155	140	155	140	155	140	155	140	155	140	155	140	155	140		
64	F.	15 Non-exop. lobular (operated 6 years before this operation)	30	190	130	190	130	190	130	190	130	190	130	190	130	190	130	190	130	190	130		
44	F.	16 Non-exop. lobular (operated 6 years before this operation)	20	180	160	180	150	180	150	180	150	180	150	180	150	180	150	180	150	180	150		
60	M.	17 Non-exop. lobular (Carcinoma and foetal adenomata)	25	160	100	160	100	160	100	160	100	160	100	160	100	160	100	160	100	160	100		
49	M.	18 Non-exop. foetal adenomata	10	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130	130		
25	F.	19 Exop. Diffuse	2	140	135	135	120	135	135	135	135	135	135	135	135	135	135	135	135	135	135		
23	F.	20 Non-exop. Diffuse (nervous)	7	120	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110	110		
16	F.	21 Non-exop. Diffuse (nervous)	1	110	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
18	F.	22 Exop. Diffuse (asthmatic pressure)	14	160	125	160	120	160	120	160	120	160	120	160	120	160	120	160	120	160	120		
45	F.	23 Exop. nodular cystic symptoms	14	160	125	160	120	160	120	160	120	160	120	160	120	160	120	160	120	160	120		
43	F.	24 Non-exop. Diffuse (toxic)	8	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
44	M.	25 Non-exop. adenoma, (tuber.)	12	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120		
68	F.	26 Non-exop. nodular	12	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120		
47	F.	27 Exop. cystic	15	140	130	140	130	140	130	140	130	140	130	140	130	140	130	140	130	140	130		
27	F.	28 Exop. nodular	30	150	120	180	120	180	120	180	120	180	120	180	120	180	120	180	120	180	120		
19	F.	29 Exop. diffuse	1	100	65	110	70	100	110	70	100	110	70	100	110	70	100	110	70	100	110		
28	F.	30 Exop. (pressure intra-thoracic lobe)	1	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80		
25	F.	31 Non-exop. Diffuse and substernal.	2	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80		
25	F.	32 Non-exop. Diffuse and substernal.	2	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80	80		
52	F.	33 Exop. Diffuse. Cystic	7	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120	120		
61	F.	34 Exop. Diffuse. Cystic	9	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115	115		
63	F.	35 Non-exop. Fibroid (calcareous)	25	180	110	180	110	180	110	180	110	180	110	180	110	180	110	180	110	180	110		

Exophthalmus is used only to designate eye symptoms
 115 to 130 blood pressure is called normal and marked "•"
 †Fair.
 ‡Good.
 §Perfect.

Time before and blood pressure given at nearest five.
 Pulse before and after operation is necessarily approximate.

brain and sympathetic system. But the goitre and circulatory disturbance is the cause of the brain and nerve lesion, not the brain and nerve lesion the cause of goitre.

The popular idea that the protrusion of the eye in goitre cases is due to the increased blood pressure seems to be an error. We have it sometimes with low blood tension. It is caused by irritation of Lanstrom's muscle.

With the conception that the secretion from the thyroid gland is merely the sensor for the adrenals, pituitary body and the entire inhibition apparatus, as a working basis, we are in a position to study the results of pathological conditions in the gland itself and results of abnormal secretion upon the system.

According to symptoms, goitre cases easily fall into three groups; first, those usually called exophthalmic. In these cases we have tremor, weakness, exophthalmus, thyrotoxis, tachycardia and hypertension. In the second group, no tachycardia, no increase in the blood pressure, but we have the same toxic symptoms of depression, tremor, cold skin, sweating, etc., and usually pronounced mental and emotional symptoms, but with a slow pulse and dull eye. In the third group we have the symptoms of toxemia and underoxidation. This group is composed of the early cases before the augmentor and inhibition apparatus have lost their balance and damaged the circulation. They are usually diagnosed as auto-intoxication.

A patient in this group will sooner or later have some experience that will bring about a disturbance of balance and then the circulatory system is affected. There is not only over-exertion of the heart muscle against a rigidly contracted arterial system, but the lessening caliber of the veins and enormous distention of the capillaries combine to increase the strain on the heart. Not only this but the changes that occur in the blood during its lengthened capillary invasion makes it irritating to the lining of the veins and right side of the heart, so we soon have thickening of the lining of the veins and of the entire endocardium of the right side of the heart, and of the lining of the blood vessels of the entire pulmonary circulation. This puts an increased load on the right side of the heart.

We have operated on four cases in which only

systolic heart sounds were audible. The slowness of the intake from the veins and the thickened valves and rapid heart impulses combine to give the effect of only one heart sound. The most prominent and constant symptom of these cases of endocarditis is restlessness without obvious cause.

It is obvious that these cases will **in time come** into the first or second group unless the progress of the disease is checked. Those in the second group with the over-stimulation of the inhibition apparatus and the usually severe toxic symptoms seem prone to develop kidney and brain disease. This is not strange when we consider the effect that the toxic blood must have upon the delicate cells of the brain and upon the secreting cells of the kidney.

Blood pressure findings are invaluable for study if they cover several weeks previous as well as at least six months following operation. The chart of 35 of them suggests that the longer the duration of the goitre, the higher the average of the blood pressure, but not always of the pulse rate. The shorter the duration of the disease the quicker the blood pressure and pulse rate return toward normal. Those with lobular goitre have had higher blood pressure and lower pulse rate than those with diffuse. Some with high blood pressure had no protrusion of the eyes and some with low blood pressure had extreme protrusion. Removal of the tonsils has seemed to lower the blood tension appreciably for two to three months in cases of hyperthyroidism.

The older the patient and the longer the duration of the goitre, the less effect operation has had on the blood pressure, but the improvement in the general condition seems to be entirely satisfactory. A large number not included in this chart, as well as some of these, appear perfectly well although the blood pressure remains extremely high.

Some goitres disappear. Changes often occur in the gland that check the hypersecretion, yet in an enormous number of people goitre is causing real damage every day.

The only certain and satisfactory treatment we have is thyroidectomy. The operation is safe if done early enough. In very extreme cases the patient should be prepared for operation very patiently.

Rest in bed is the main thing. The patient should not be allowed to raise up even to eat or drink. No excursion to the bath room should be permitted. Ligation of the blood supply to the gland is practiced extensively by some of our best men. Ligation causes a thrombus to form and part of the gland becomes non-secreting and symptoms are temporarily relieved. Injection of *boiling* water has the same effect. It is not as dangerous and in our experience is more satisfactory. Ten to 40 minims is enough and should be injected every fifth day through a rather large, short needle. I do not believe the patient should be allowed up before eight weeks after this procedure, unless the portion of the gland injected has been removed. Ice bags to the throat are used by some extensively. We never could see any benefit derived from this procedure.

About two years ago we noticed that removal of diseased tonsils affected goitre cases very favorably. Then in some very advanced goitre cases we tried removing apparently healthy tonsils. The immediate effect was so favorable and decided that we feel that the tonsils must secrete some substance that augments the circulation, and that their removal gives temporarily a positive relief. In our hands, removal of seemingly healthy tonsils has given more temporary circulatory relief than ligation of the poles of both lobes of the gland. This effect is not due to the hemorrhage, as proven by the fact that in the cases where no appreciable hemorrhage occurred the results were brilliant.

During the last fourteen months we have used tonsillectomy with great satisfaction as routine procedure in preparation of extreme goitre cases for operation. Following it we keep them absolutely in bed and think maximum of relief is attained in 10 to 16 days. In very severe cases we keep the patient in bed, give boiling water injection every fifth day and finally remove every vestige of tonsils. Removal of a small stump left from previous tonsillectomy will sometimes give wonderful relief. Ten to sixteen days later we operate.

We always use gas anesthesia, preceded by morphin grain $\frac{1}{8}$ and atropine $\frac{1}{150}$, given one-half hour before operating; then we use novocain $\frac{3}{8}$ per cent. for skin infiltration and nerve blocking of the deeper structures.

It is considered that one-sixth of the gland is sufficient to continue its action. I believe it is better to leave a portion of each lobe when possible. At the upper poles are usually some healthy portions of gland that are easily left. We cut through the gland substance with impunity.

By making tension upon the gland and clipping only the connective tissue, there is no leakage of thyroid material following the separation. Searing the cut surface with the cautery or crushing the gland before cutting is absolutely unnecessary and harmful. Only the smallest possible portion of gland should be crushed. The mortality has been nil in our experience and the results have been more than satisfactory in all but two and they were benefited.

These patients have all started on the road that runs through the first station of auto-intoxication, on to the stations of ruined circulation, destroyed kidneys, injured brain cells, protruding eyes, lost sexual powers, continual agitation, disturbed emotions, difficult breathing, uncomfortable living, unhappiness and ultimately disaster and death.

My plea is that we rescue them, not at the station of exophthalmus, not at the station of tumor of the gland, not at the station of destroyed circulatory apparatus, but before serious and irreparable damage has occurred let us recognize the condition and rescue them at the station of auto-intoxication.

DISCUSSION.

Dr. F. Buckmaster, Effingham: This is a very important subject and one which, of course, many of us are unable to discuss properly, but I feel that it is one of the most important questions that will be brought up at this meeting. It is unfortunate that many of the men who have taken the time and trouble to come to this meeting have not heard this paper. I saw Dr. Sloan operate on his 150th and 151st cases and the doctor has done a great deal of good work on the subject of goitre, not only in operative work, but his study of the work and the results of his work are to me very interesting. I feel that his work in this field is considerably different from that of a great many workers along this line. The doctor will certainly teach every one who is not giving the subject a great amount of thought the importance of an early diagnosis in goitre, as he tells you in his statistics, and the results are bound to be a great deal better following operation.

We know in these goitre cases that we have extensive degeneration of heart, kidneys, blood vessels,

and removal of a portion of the gland itself does not regenerate or reinstate normal conditions in these parts; for this reason, operation should be done while the patient still has a pretty good framework of these parts left.

The doctor has given me a great deal of information along the line of substernal goitres and goitres that are hidden. We have a patient who came to us a short time ago with great exophthalmus and all the symptoms well marked. She is a late stage case and she shows absolutely no thyroid enlargement on actual examination. By having her lie down, placing a pillow under her shoulders and lifting her up, the upper edge of the goitre can be seen, one which otherwise is substernal.

If any one of you is in the doctor's neighborhood and will let him know ahead of time when he is doing goitre work, he will certainly show you much interesting work and give you a good deal of information.

THE WEST INTRA-NASAL PARTIAL RESECTION OF THE TEAR SAC FOR DACRYOCYSTITIS, DACRYO- STENOSIS, PHLEGMON OR EPIPHORA.*

J. SHELDON CLARK, M. D.,
FREEPORT, ILL.

The subject of blennorrhea of the nasal duct, with accompanying inflammation of the lachrymal sac, is one which should be more thought of by the medical profession as a whole. Time was, when all we thought of doing for the alleviation of those suffering from this distressing and disfiguring affliction was the use of measures of more or less temporization. Repeated probings are of little value where there is a stenosis. In my opinion, where probing is to be thought of, if a result is not obtained in two or three sittings, then one should desist in this and make preparation to do something more radical. The wearing of styles of copper wire are objectionable to the patient in many ways, and are furthermore a constant reminder of a physical imperfection.

Chronic dacryocystitis is a very dangerous affair for any one to carry about. The trouble is that it is like the dynamiter's bomb or his bottle of nitro-glycerin; it is likely to "go off" at any moment. One with a sac infection is liable to corneal injury at any time, and if the conjunctival sac is continually bathed in pus, what a fine

opportunity for infection to take place and cause an ulceration of the cornea, upon the slightest injury to that structure. Fuchs, in his text-book, says that acute dacryocystitis causes fully one-third of all the cases of *ulcus serpens*, that dreaded disease of the cornea which is so disastrous to sight.

To my mind there has been entirely too much procrastination with regard to chronic tear sac infections. We would not so temporize with pus sacs in other parts of the body and why here? Up to the present time the Meller operation for total excision of the tear sac has given good results. There are objections however, to this procedure and I think that West, in his operation, has overcome these objections. First is the idea that most people have that there will be a resultant scar. Second, is the query regarding the tears. We can with much assurance tell the patient that there will be no scar, and yet scars do sometimes appear. Then as to the tears. Although we can state that there is a marked diminution in the secretory function of the tear glands, all of which is more or less conjecture, and we can say that in event that there are too many tears tumbling over the face, that we can remove the tear glands, yet all this does not make for the peace and comfort of mind of the prospective patient, and he is quite apt to delay the operation. When one broaches the subject of the intra-nasal operation it has been my experience that it is regarded by the lay mind with much greater favor. I think rightly so, for he now has a functioning tear apparatus and has neither the anticipation nor the realization of any external defect.

Parsons¹ (Pathology of the Eye, ii, 750) says: "The sac is lined by cylindrical epithelium, usually in two layers, the inner layer consisting of very high cells, 35 to 50 microns. There is a definite basement membrane. It is doubtful whether the cells ever bear cilia. There are often many goblet cells. Beneath the basement membrane is an adenoid layer of the usual type. It is doubtful if ever it contains follicles normally. The sub-mucosa contains dense fibrous tissue which is very vascular, especially on the part adjacent to bone. There is no muscular coat, but elastic fibres are abundant." In cases of stenosis, as a rule, the point of inflammation and resultant

*Read before the 64th Annual Meeting of the Illinois State Medical Society, at Decatur, May 20, 1914.

stenosis, occurs at the narrowest point in the lumen of the duct, and that point is just beyond the lower end of the sac, at the beginning of the nasal duct. It is easy to see that in turgescence of the duct that at this point the epithelial cells are first encroached upon and their blood supply interfered with; and resultant inflammation occurs.

Infections of the sac can be either ascending or descending. One condition that exists more frequently than many suppose, is tuberculosis of the tear sac. Bribak, working in the clinic of Professor Axenfeld, in the University of Freiburg, reports upon the material in that clinic and states that in the past few years twenty-five cases of tuberculosis of the tear sac had been found, although only a part of the extirpated sacs were examined microscopically. In their experience, tuberculosis of the tear sac has been the only demonstrable lesion of tuberculosis found at autopsy. Axenfeld describes these cases of tuberculosis of the tear sac as being "doughy, elastic, and having slight resistance." It would seem therefore a matter of moment that we make a diagnosis of tuberculosis of the tear sac before the process has gotten beyond the tissues of the sac. Conservative treatment in these cases is only putting off the evil day.

My attention was first called to the operation of Dr. West, by Professor Holth and his friend Dr. Heidenrich, both of whom had made the trip down from their homes in Christiania to Berlin for the purpose of studying West's technique. We found the doctor very busy at his work in the poliklinik of Professor P. Silex, at 18 Karlstrasse, Berlin. At that time Dr. West had records of over two hundred cases that he had operated upon for varying conditions of the tear sac, these included phlegmons, chronic dacryocystitis, dacryoblennorhea, fistulas and secondary operations following the Meller excision procedure, where the patient complained too much regarding the epiphora.

The operation is highly satisfactory in the conditions above mentioned. Before selecting a case for this operation one should examine the canaliculi to see if they are smooth; if they are not the results are correspondingly poor, for the canaliculi must be able to perform their function and get the tears over into the sac, or what is left

of it, in order that you have a positive result. One puncta should work, and preferably the lower one.

The relation of the ethmoid cells to the fossa lachrymalis is interesting for the fact that they vary so much in different skulls. Usually the ethmoid cells all lie posteriorly to the lachrymal fossa, and in an antero-posterior section this is very interesting to note. Occasionally one or two cells extend laterally and anteriorly, thus in a measure hindering one in his work at getting at the sac. However, their presence is not an insurmountable difficulty in performing the operation.

The lachrymal fossa is formed by the junction of the paper plate of the lachrymal bone and the nasal process of the superior maxillary bone. There are three types of fossae. 1. Where the maxillary bone forms two-thirds of the fossa and the paper plate one-third. 2. Greater part of the floor of the fossa made up from the maxillary bone. 3. Greater part of the floor of the fossa made up from the paper plate of the lachrymal bone. Therefore it is plain to see that an easy access may be gotten to one sac, while in another, one would encounter heavy bone with corresponding greater resistance.

The principle of the operation is to cause the tears to pass through the sac directly into the nasal chamber, without descending the duct to the inferior meatus. The idea of getting drainage through the nose and thus affecting a cure in cases of dacryocystitis is an old one. The ancient Greeks and Egyptians had their ideas concerning the *modus operandi*; using everything from a hot poker up the gauntlet of mediaeval surgical instrumentaria. Caldwell, in 1893, reported a case in which he had run a sound from above downward to the point of stenosis and then burred up from the nose until he came to his sound and says that he cured his patient. He was obliged to take away the anterior end of the inferior turbinate.

In 1899 Seifert, of Württemberg, reported the removal of the tear sac for tuberculosis, and Professor Killian, in the discussion, mentioned that he had removed the anterior end of the inferior turbinate, thus getting to the canal for the treatment of tuberculosis of the tear sac.

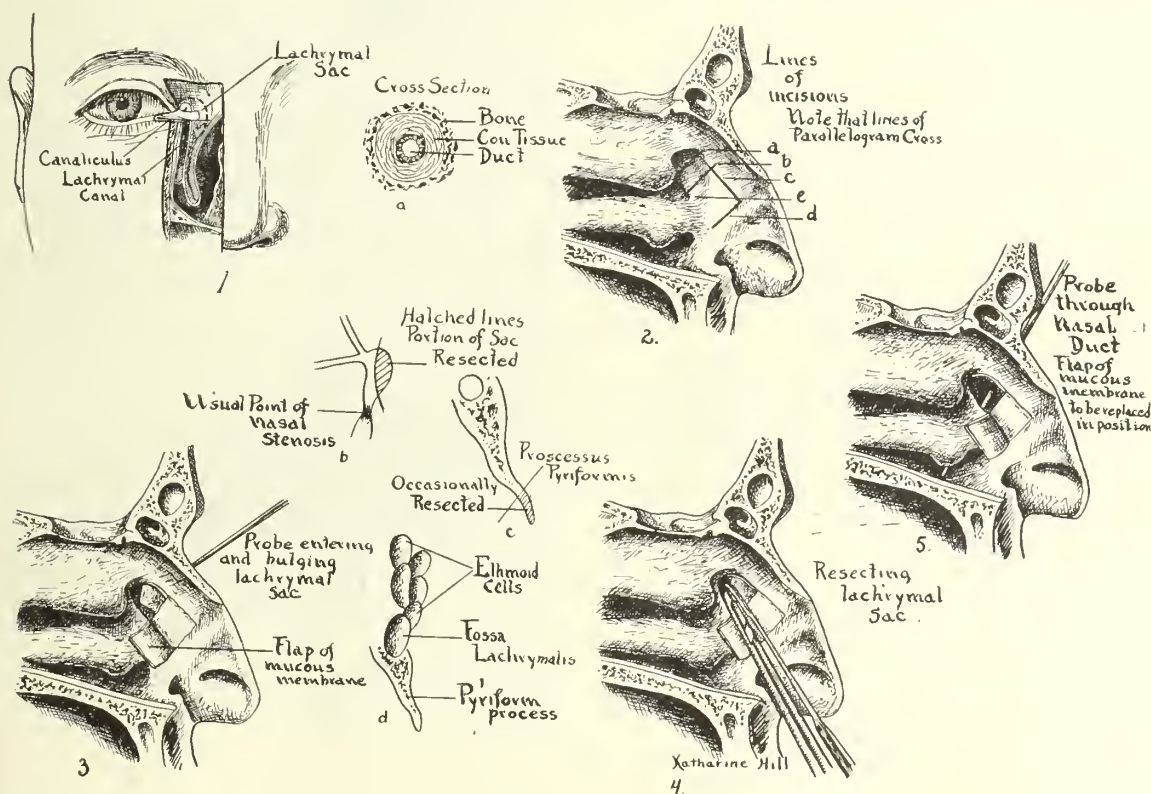
In 1903 Passow, then at Heidelberg, reported

four cases of the Killian procedure, in which he did a preliminary inferior turbinotomy, and then under general anesthesia, attacking the duct. It will be seen that all these procedures called for the resection of the anterior end of the inferior turbinate body and the opening of the duct.

In 1098 West began his work and until May, 1910, had done seven cases. The only difference in his work and that of the others just preceding him, was that he attempted more conservatism. Among seven cases, he found it possible in three, to push the sound down the duct, and dissect out the sound in the nose above the inferior turbinate body, thus leaving that structure intact. In the other four cases this was impossible for him to

well as the duct. At this time he always dissected the sound loose in the nose and this procedure proved difficult.

In 1910 West read a paper before the Berlin Laryngological Society, and the paper was published in Fränkel's *Archives für Laryngologie*, giving the technique of the operation as then done. In 1911 West returned to Berlin and again took up the work on the duct and sac operation. He then began to do nothing but the sac operation. It was very hard for him to get patients and up to July, 1912, he had done but 40 cases, and a number of these were shown to the Ophthalmological Society of Berlin. He then took up the work in the Poliklinik of Prof. P. Sillex and



do; for the reason that he could not sound through into the nasal duct. Therefore, in these cases it was necessary for him to open the canal above the inferior turbinate and follow the canal up sufficiently high so that it was possible for him to pass a sound horizontally through the canaliculus, into the nose. He called attention to this operation in Washington and Berlin, and termed this the window resection of the nasal duct. In three of his cases he opened the sac as

was able to secure an unusually large number of cases, so that in February, 1913, West described his technique before the Laryngological Society of Berlin, with a report of over one hundred cases. In April of that year he gave a demonstration before the Berlin Medical Society and at that time had done 119 cases. Up to December, 1913, he had a record of over 200 cases with a positive fluorescein test in 90 per cent. *The technique of the operation* is divided into four steps; a pre-

liminary incision of the lachrymal puncta having been made a day or so previous to the operation.

1. If the nasal septum is deflected in such a manner as to obstruct the view then a partial resection of the septum is made. It is preferable to do this from the opposite side from that on which you are to do the tear sac operation.

2. When the anterior end of the middle turbinate body is large and covers the fossa then it is necessary to resect the anterior portion of the middle turbinate.

3. The making of the muco-periosteal flap. This is made with the view of not alone providing a window at the floor of the sac, but also to gain room so as to properly view the parts to be attacked. Incision (a) is made rather vertically and high up. Incision (b) is made about one-half inch down, but parallel to incision (a). Incision (c) is then begun beyond the line of incision (a) and at right angles to it. This overlapping of the incisions is very important for it allows the parallelogram of muco-periosteum to be easily lifted without tearing. Incision (d) is then made on a line with the aperture pyriformis. Incision (e) is made parallel to incision (c-d), as shown, and crosses lines (a) and (b). Fig. 2.

4. Resection of the edge of the processus pyriformis is made when this structure presses too much toward the median line. To do this the bone must be denuded of its covering both internally and externally. Fig. c.

A preliminary anesthesia is obtained with cocaine and adrenalin and in the usual manner. An injection of a 0.5 per cent. solution of novocaine is made at the junction of the skin and mucous membrane and in the neighborhood of line (d). Fig. 2.

The parallelogram of muco-periosteum removed from the region of the fossa of the sac is placed in normal salt solution and at body temperature, and thus is saved for use in covering over the resected end of the middle turbinate, provided this structure has been attacked, and not then if there are any ethmoid cells that have been opened, the reason being that it would prevent drainage.

The torus lachrymalis is the name given by West to a very important anatomical landmark. It is caused by the floor of the sac pushing itself toward the nasal chamber and thus gives rise to a

protuberance, and it is by this structure that one locates the position of the sac. The chisel is to be placed on this protuberance, in beginning the resection of the wall of the bone. The bone forming the floor of the fossa is removed; the operator holding the chisel firmly in place, while an assistant uses the mallet. Fig. 2A.

Upon getting the sac clear of bone, sufficient to make the desired resection, and having been careful to orientate yourself with a sound passed



through the canaliculus and gently pressing the sac into the fenestra made in the bone (Fig. 3); you then reach in with the grasping forceps, and having secured a firm hold upon the wall of the sac, it is then resected. Endeavor to get away a good sized portion of the sac. Fig. 4.

The after treatment. Xeroform gauze packing is removed from the nose on the third day. Very little packing being used. Boric acid solution is then washed through the sac with a canula inserted into the canaliculus until it is seen to come from the anterior naris. On the third day, the

packing having been removed, sterile water is injected through the canaliculus to wash out all clots that have formed and the washing is kept up with injections every five minutes until such time as the water comes through clear.

An operation is not considered successful unless the "color test" can be secured. This consists of the following procedure. A 2 per cent. solution of fluorescein is dropped in the conjunctival sac, a piece of cotton having been previously placed on the middle turbinate body, and in a few minutes you find a fluorescein stain on the cotton, upon its withdrawal.

In several of my cases I have experienced difficulty in grasping the sac wall, in that when the probe was inserted and pressed inward the grasping forceps would engage the end of the probe as well as the sac. To obviate this difficulty I have had Mr. V. Mueller make for me a special punch forceps that works well in this part of the operation. The technique for this is the slitting of the sac well anteriorly and then press the lower blade of the forceps through this incision and punch out as much of the sac as is desired.

CONCLUSIONS.

The intra-nasal partial resection of the tear sac has many advantages, and they are most all of them for the patient.

1. A functioning tear apparatus is the foremost attainment.

2. There is no possibility of an external scar, nor the dread of one.

3. There is no epiphora following the operation.

4. There is no possibility of having to do a secondary extirpation of the lachrymal gland on account of troublesome epiphora.

5. Epiphora due to stenosis is permanently cured.

6. The operation may be performed while a phlegmon is present and with utter unconcern.

7. In view of the many advantages cited above, a prospective patient is very much more apt to accept the intra-nasal partial resection than they are the external extirpation of the sac.

INSTRUMENTARIA.

In order to do the work as outlined, it is quite essential that proper instruments be at hand, and for this purpose the firm of V. Mueller & Com-

pany have made the following: A right angled knife for making the incisions in the muco-periosteum in the vertical direction. A curved knife for making the longitudinal incisions. A universal handle for the knives. A straight and a curved chisel, the latter very essential for the initial attack on the torus lachrymalis. A mucous membrane elevator. A special grasping forceps that is used in a universal handle, thereby render-

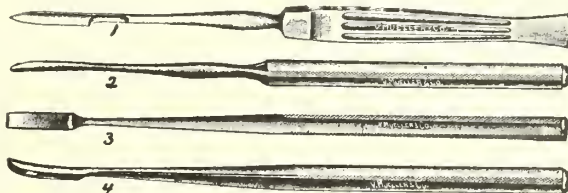


Plate 3, Figs. 1-4.

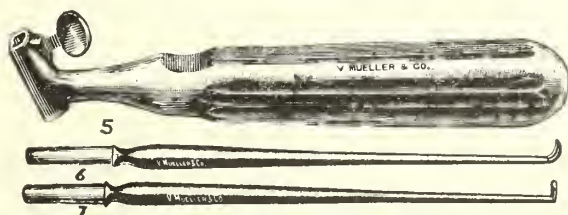


Plate 4, Figs. 5-7.

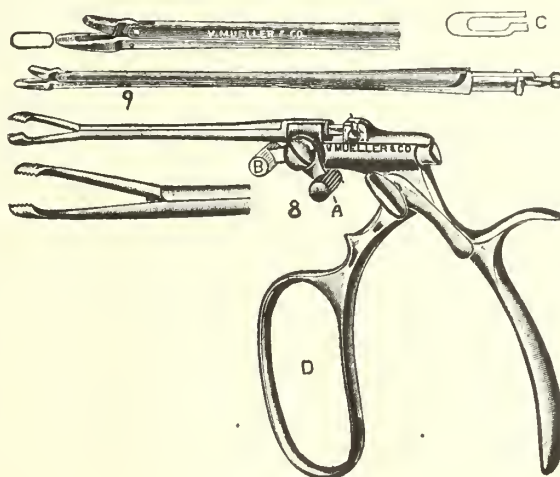


Plate 5, Figs. 8-9.

ing it unnecessary to have right and left. A long handled knife with a thin cutting blade. A special punch forceps that can also be used in the universal handle.

DISCUSSION.

Dr. H. S. Gradle, Chicago: I saw some of these cases in Berlin last fall, and I noted that fluorescein dropped into the conjunctival sac appeared almost immediately in the nose. There was no overflow of

tears, no matter whether the eye was irritated, as it was in one case with calomel put in, which would correspond to the wind condition out of doors. According to the reports from West and the Hirschberger clinic, it would seem that the results of this operation are more satisfactory than those of simple resection of the tear sac even as it is modified by toti. I have never done the operation, I have never had occasion to see it done, but I would like to see it because I think it is quite a satisfactory way to take care of the condition.

Dr. Harry Woodruff, Joliet: I would like to ask you, Dr. Clark, about the experience you have had with this operation, whether this operation is one that can safely be substituted for the removal of the tear sac preliminary to the extraction of cataract, whether you feel absolutely safe that your infective focus is removed?

Dr. Clark, Freeport (closing the discussion): It is to be regretted that so many of our confreres from Chicago have found it necessary to take an early train, and so my paper has suffered somewhat in not having the discussion promised. Dr. Norval H. Pierce was to have led in the discussion, but he had to leave early.

I have with me some wet specimens that I have prepared, which show, in a general way, what one aims to do in this operation; and to those who are interested, I shall be pleased to demonstrate the operation and show some instruments at the close of this session.

In answer to Dr. Woodruff. I am sure that this operation is of use and is indicated in tear sac and duct troubles as a preliminary to cataract extraction. Dr. West has performed the operation in the clinic of Prof. Silex in Berlin on various occasions as a preliminary to cataract extraction and it has proven a very acceptable procedure. As to its effectiveness in the removal of the infective focus; of this I am quite certain, as it is a matter of drainage, and this you establish beyond a question of a doubt. However, there are some contra-indications and they must be remembered and looked for in each individual case. Previous mention of them in my paper makes further repetition unnecessary. I thank you.

76 Stephenson Street.

THE FAMILY PHYSICIAN OF THE FUTURE.*

E. A. COOK, M. D.,

ALTON, ILL.

President's Annual Address.

"What do we live for, if it is not to make life less difficult to others."—*George Eliot*.

While attending our state meeting recently, I listened to some of the most able papers I have ever heard. During the delivery of these papers

by those who know, we were filled with ambition to become a Norbury, a Sedgwick, an Eastman, a Billings or a Murphy; or to be able to accomplish the great work of any of these men, who are masters of their subjects. But on our return home we find ourselves, each in his little community, doing a work well and faithfully, that even these men mentioned can not do with satisfaction. We find ourselves among our friends, whose very minds and hearts we are privileged to know. What greater opportunity can we desire? In our humble places let us not forget the greatest physician, and with Kipling may we say:

Teach us to look, in all our ends,

On Thee for judge, and not on our friends.

I believe the time is at hand when we should cultivate the traits, customs and practices of the physicians of thirty or fifty years ago. During those times the doctor was the ideal in his community. He was authority on all subjects. He had an interest in church, school and state—yea—he assumed considerable activity in these. No school board then was complete without the thoughtful, painstaking man of the district, the doctor. State and Nation-wide government—not politics—received his attention and activities. The meager transportation facilities made it quite impossible for many of these men to serve their state and nation except at the ballot-box. However, the dignified, busy man always had a deep and sincere interest in all local affairs; his advice was sought on all perplexing questions. Today "Doc" is too busy to be troubled and he leaves to the ward politician the political and moral issues that have to do with his family and his home.

Although the family physician of old may in some instances have been somewhat profane and not strictly temperate in his habits, he was a godly man, a man of tender heart and feeling sympathy, truly a family physician. He was a man who enjoyed the entire confidence of those whom he served; he was a man who could instill hope in the dying; it was he who consoled the mourner and comforted the broken heart. The people today are longing for just such service. Shall we give it? If not, we are not enjoying the real pleasure and honor of being a family physician.

*Read before the Madison County Medical Society, at Godfrey, Ill., June 5, 1914.

Our American people have passed through the "patent medicine" era; they have discontinued the doctor who advertises; they are slower to try the "new doctor"; they are not so freely seeking the specialist. The display of brilliant instruments and apparatus does not appeal as it did a few years ago. Our people today are passing from a period of "fads", "isms" and varied arts of healing and are inquiring for the honest family physician. If I read the sign on the wall correctly, we must pause and consider what our people need most today. Let us develop the principles that so strongly characterized the never forgotten family physician. We must interest ourselves to a greater extent in every patient and his family. We must be interested beyond his physical ailments and the paltry dollar. We must know the husband and the wife as well as every individual member of the family; we must encourage the good will and counsel of our patients. We must render our services in a more tender, sympathetic manner and not so much as a cold business proposition.

I am sure that the simple, disinterested business view of the practice of medicine began about one and one-half decades ago, and during this time we would find as many different doctors practicing in some families as there were members in the family. This condition has been short-lived and I am confident it will soon be a custom of the past. Therefore, my impression is that it behooves us to set ourselves about to become the family adviser, the confidential friend of each patient we may meet.

Our profession is already regaining much of the dignity it formerly possessed. This no doubt is due in part to medical organization throughout the country. No body of men composed of such as the members of the Madison County Medical Society or any other county medical society, can come together without an influence being felt. Hence we feel that great good for the profession can be accomplished simply by our coming together. The man who enjoys social and intellectual intercourse with his fellow is the man who brings satisfaction and pleasure to those whom he serves. Our people are coming to expect the doctor to attend medical societies and meetings pertaining to his profession. They hold no ill-feeling, if informed, when his services are re-

quired, that he is on duty at some professional gathering. Even today many patients boast of and glory in the fact that their doctors attend such meetings.

Our ambition should be the greatest good for the greatest number and not the greatest number of calls in a given period of time. We differ but little as to the number of professional calls we might make during the day, but we may differ greatly as to the real value to humanity. We may have removed an appendix, we may have drained a gall bladder, we may have done even more technical, skillful work and thereby saved one physical life or relieved one sufferer and are soon forgotten. The man who by his very being, the "family physician" of the future, if you please, is blessing lives and homes, thereby establishing an everlasting memorial that becomes more splendid as long as time lasts, is the one whom the people praise and the great Physician above looks on with favor.

This is an age of preventive medicine and great educational movements. It is a time when our profession, by disseminating knowledge, is saving millions of lives in our country. Are we, the members of the Madison County Medical Society, doing our share? Have we done anything to merit the recognition and good will of the masses? If we are to realize anything, it must be the fact that all of us must study the great problems of preventive medicine longer and harder than ever before, and present them to the people and receive their co-operation if we would accomplish the greatest good to the greatest number. The doctor today is blessed as never before, with opportunities for doing good. At every turn we are greeted by invitations to instruct the masses, the rich and the poor, the old and the young, the man and the woman, the boy and the girl, collectively and individually. The social problem no doubt has had much to do in bringing us closer to our people and recalling the "family physician." This society feels proud indeed of its secretary for his very able and enthusiastic manner of presenting this important subject in the current issue of our "Madison County Doctor." May every one of us gather at least a spark of inspiration and make an opportunity to do some good for mankind; may we consider it not an irksome duty, but rather deem it a rare privilege, thus to serve the unwise.

May we not pause to note that each one of us is the only one in about one thousand people, who possesses the correct knowledge of such problems and who is capable of imparting it intelligently to the asking. If it is true that one thousand people today are under the personal supervision of you or me as regards their health and that of their offspring, are we not laden with a greater responsibility than we usually assume?

With the vast amount of valuable information that we possess pertaining to the social evil, in this teachable age, is it not just that we be held accountable for the manner in which we use this talent? The members of the Madison County Medical Society, like the county society which is our guest today, are men of high ideals, rare abilities and superior attainments and the people have a right to expect much at our hands. The application of this knowledge to the welfare of men lies with the physician. Because others are unprepared, this leadership becomes a duty we owe the community and ourselves. Unless we serve our several localities with all our powers, we do not deserve the esteem to which we are specially entitled.

In the onset I hinted that we should be in politics. We never lower ourselves when we stoop to raise another. The doctor, this family physician, by all means should be in politics. He owes it to himself to become conscious of the good he alone can direct. He owes it to the community that supports him to recognize clearly the purpose he should serve in that community. By the very nature of his occupation he should be in politics. Of all professional classes the doctors with their power of reasoning faculty are supposed to be the best balanced men known, and they of all people should hold to the principle of "the greatest good to the greatest number." As a group of individuals doctors are noted for their fairness, candor and honesty and politics would be better with them in it. Good physicians, the future family physicians, are square men and will not barter their influence for an unworthy cause. You men naturally examine into matters every day, exercising your rational faculties and deciding for the best. Doctors inspire honest ruling powers. They are always interested in education, sanitation and the betterment of the common weal. They are members of a most liberal profession, discriminating in their methods and knowing

what is beneficial, they can discern the vicious from the good and act justly. They are natural leaders of affairs in their communities and their training makes them superior instructors in all civic affairs. Their neighbors look to them for guidance in local as well as state matters. Therefore, I say with all earnestness, you men, the family physicians of the future, get into politics. You do not need to stoop to the level of our present politics, but raise it to your standard. The country needs you just as much today as it needed the boys in blue in 1860. Apply your antiseptic treatment and see the jack-pots vanish. Your very presence in governmental halls will immunize those about you against the political slush-holes of infection that are demoralizing the people.

"I would be true, for there are those who trust me;

I would be pure, for there are those who care.

I would be strong, for there is much to suffer.

I would be brave, for there is much to dare."

Then, in conclusion, permit me to urge you to become in reality the family adviser, the family friend, the family physician, the one to whom the father, the mother, the husband, the wife, the son, the daughter, the groom, the bride may come with confidential matters, expecting sympathetic, friendly counsel. Become family physicians, the sociable, broad-minded, dignified gentlemen as were our preceptors.

Be it on the lecture platform, in the school-room, in the school-board, among the young people, in the city council, in legislative halls, in the sick-room, in the home, strive for the greatest good for the greatest number.

"A man is worth only as much as he is worth to his fellow-men."

THE CLINICAL SIGNIFICANCE OF BLOOD PRESSURE AND ITS RE- LATION TO LONGEVITY.*

ALBERT L. BRITTIN, M. D.
President Illinois State Medical Society.
ATHENS, ILL.

Of the various subjects which today occupy the attention of the medical profession there is perhaps not one of more importance than the con-

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sideration of the pathological conditions which affect blood pressure. This subject is of two-fold importance to us; firstly, as physicians, in that the majority of our patients over forty-five years old die of some complication due to cardiovascular disease; and, secondly, as a matter which affects us personally seeing that vital statistics show that the percentage of deaths from this same cause, between the ages of 50 and 60 years, is about three times as high in the medical profession as in any other class of the community. We are, therefore, both professionally and personally interested in everything pertaining to the subject that may guide us to a better understanding of the conditions which underlie a pathological or abnormal condition of blood pressure.

Hypertension is the condition with which we are mainly concerned. In an examination by Third,¹ he found, after excluding syphilitics, that a large majority of 200 business men, between the ages of 50 and 55 years showed definite hypertension; 75 per cent of women, aged over 35 years, show some hypertension, particularly at the period of climacteric. Under 35 years there is no such increase and we cannot say that the effect is physiologic. The condition of hypertension with which we are usually brought into contact is that which is associated with arteriosclerosis in elderly persons; although this latter condition is not always accompanied by high blood pressure, and may in fact occur with normal pressure or even with hypotension.

A blood pressure ranging above 150 mm. may be considered high. It may, and often does, reach as high as 300 mm.; over 200 mm. it may be considered as very high. Such very high blood pressure may occur at any age and has been observed even in infants. It may be due to heredity or other specific cause. Temporary causes such as pregnancy may cause a marked hypertension; but when a patient is continuously subject to hypertension it will produce an arteriosclerotic condition in time.

Very high blood pressure is, however, usually noted as a concomitant of chronic renal, *splanchnic*, or aortic disease. Piersol² states that high blood pressure patients fall into one of three groups:

1. Those with chronic nephritis.
2. Those with arteriosclerosis.

3. A group of unknown origin, probably with localized vascular disease.

Nephritis of the chronic type and arteriosclerosis, usually associated in persons beyond middle age, are then the two conditions, or rather the conjoint condition clinically found accompanying a pronounced high blood pressure. Nephritis is a very important and common factor. In 50 cases of very high blood pressure examined by Piersol,² 21 were primarily nephritic and 27 were more or less affected by nephritis. Janeway in an analysis of 130 similar cases found 81 per cent. nephritic and 6 per cent. doubtful nephritis. High blood pressure is found more often accompanying nephritis than arteriosclerosis, and where arteriosclerosis is accompanied by high blood pressure it will almost invariably be found that the kidneys are affected.

As regards arteriosclerosis, or degeneration and hypertrophy of the arteries, as this is a condition which cannot sooner or later be avoided, we will consider it in some detail; as, in the absence of specific organic disease, it is the most important degenerative process affecting longevity.

When hypertension of the blood is due to arteriosclerosis alone, it usually occurs in one of two conditions;

1. In the earlier stages of sclerosis the hypertension is the result of spasm of the vessels.
2. If the sclerous process is far advanced the hypertension is due to secondary fibroid and calcareous changes in the arterial walls which cause a loss of elasticity and a thickening of the coats; this consequently narrows the passage available for the blood and necessitates its being driven at a greater pressure. This is the condition which we usually find in clinical examination of elderly patients.

The degeneration and atrophy of the arterial walls must be looked at as an inevitable process, which beginning perhaps at birth, continues throughout life and only ends in the grave; it is part of the general process of decay which accompanies senility; indeed it is in some measure an effort of the organism itself to provide a defense by a hypertensive condition of the blood not only for the weakened blood quality, but for the failing function of other organs. Nevertheless there is no reason why it should become pronounced in its effects until a ripe old age has been

attained. What we have to deal with today is premature sclerosis, to the fact that this destructive process is well established, from causes perfectly within our control, at least 30 years before its due time in a large percentage of cases. When we consider that it is only about his fortieth year of life that a man may be said to have reached the maximum of his physical and mental faculties; when he is best qualified to perform his life's work with judgment and efficiency; when we consider moreover that the time spent in the preparation is entirely out of proportion to the few short years during which the majority of men, having reached this epoch, find themselves in a fit condition for work; it does seem an economic waste of human effort which might to a great extent be frustrated; and it is a reflection on our capacity as guardians of human life that such conditions should continue.

I do not propose to discuss whether hypertension of the blood supply is the cause of degeneration of the vessels, or if the changes in the vessels produce hypertension. I believe that the altered condition of the vessels is due to changes effected in them due to altered conditions in the blood itself. According to Loeb³ metabolic activity is favored by alkalinity of the blood; a condition of acidity and an increase in viscosity make it more difficult for the blood to flow through the arterial channels. The chief condition, therefore, which favors a state of hypertension in the blood is alkalinity. Besides, when the blood is in an acid condition, it will precipitate its soluble calcium as an insoluble calcium carbonate in the blood stream; these insoluble particles irritate the intima and penetrate the connective tissues of the media and thus set up the first process, irritation, the beginning of hypertrophy. We have, therefore, a double effect due to the acid condition of the blood, viz., calcification or hardening of the coats of the vessels by which their elasticity and power of expansion is lost and secondly a gradual thickening if the process continues which may ultimately obliterate the lumen.

What concerns us most particularly, therefore, is the nature of the factors which usually produce an acid condition in the blood. They are the infective processes due to the pathogenic microorganisms; intoxications of all kinds; per-

sistent muscular exercise with insufficient removal of waste; excessive proteids; variations in the amount of certain of the internal secretions, etc.

To put the matter succinctly whatever is capable of producing a toxemic condition in the blood supply is a potent agent in the production of hypertension; and if this agent works long enough the hypertension of the blood will undoubtedly produce arteriosclerosis.

It is usual to say that a man is as old as his arteries. I prefer to say that a man is young and vigorous just as long as he is capable of keeping his blood free from toxins. The purity of the blood is the first, last and chief factor in regulating blood pressure and determining our longevity. This seems only a well-known truism, but call the failing process which terminates life what you will, let it be cardiac disease, nephritic complications, arteriosclerosis or otherwise—it is still no more than the effects of toxemia in the blood supply.

The various phases of arterial disease and the factors concerned in them have been dealt with so often and so ably and are so well-known to you that I will not detain you by dwelling on them; but there is one point which I think very important and which is not generally fully considered in connection with this disease. I refer to the secretion of the ductless glands, particularly the thyroid and the adrenals.

Lorand,⁴ who has for many years been writing on the importance of these secretions in connection with the upkeep of bodily vigor and the warding off of defects due to the onset of senility, has in his book "Old Age Deferred," called particular attention to the importance of the thyroid secretions as the principal agent concerned with the destruction of toxins engendered in the body. He shows how close is the connection between the thyroid, kidneys and the liver; and that degeneration of the thyroid or suppression of its secretion generally brings about loss of functioning in these other glands.

The most important physiological effect of the thyroid secretions for the purpose of this paper, is that these secretions, the chief constituent of which is iodine, cause a diminution in the blood pressure. This is due particularly to the control effected by the thyroid in oxidation processes and

the elimination of the phosphates, wastes and toxins. The thyroid secretions are, therefore, most actively engaged in preventing a condition of acidity in the blood which as we have seen, is the precursor of hypertension. It is also known that thyroid secretions are antagonistic to the secretions of the adrenals. The adrenal secretions are known to produce acidity in the blood and consequent hypertension, and the factors which are known to be concerned with the production of hypertension, and consequent arteriosclerosis are precisely those which can clearly be demonstrated to produce hypersecretion of the adrenals.

Here then we have two well established clinical facts: 1, We know that if the thyroid secretions can be kept normal that they will, other things being equal, tend to prevent high blood pressure and the consequences due to it; and 2, we know that over-stimulation of the adrenals from whatever cause will induce high blood pressure and if continued will lead to arteriosclerosis and ultimate death.

Sajous⁵ has recently pointed out the effects of adrenal secretions in the production of arteriosclerosis. He shows that all the morbid factors concerned in the production of this condition stimulate or cause overactivity of the adrenals. This secretory activity of the adrenals acts most speedily on the arterioles and reduces their caliber more or less. The medial and intimal vascular tissues dependent for their blood supply on the arterioles receive diminished nutriment and degenerate. When the coronal arteries become sclerous, there is usually faulty nutrition of the cardiac musculature and a degeneration which may produce a lowering in the systolic pressure. This condition is frequently met with in old people with advanced sclerosis of the peripheral vessels.

Infections and intoxications of all kinds are the factors that usually cause diminution or destruction of thyroid secretion. I have already mentioned the intimate connection between the kidneys and the thyroid. A nephritis will at once affect the thyroid; the uneliminated toxins will cause hypertension and hence the fact that arteriosclerosis is so often found associated with chronic nephritis. In fact, as Simon⁶ puts it, hypertension is not the prime mover in the crea-

tion of arteriosclerosis, but it is an intermediate step between intoxication and renal insufficiency.

To come to a conclusion and a summing up of my remarks. Hypertension of the blood is the pathological condition most frequently met with particularly in old people. This condition is referable to an acid condition of the blood due to toxins or infections. This condition, which is assisted most powerfully, if there is an insufficiency of internal gland secretions, usually leads if continued to arteriosclerosis, and ultimate death.

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DIAGNOSIS OF INTRACRANIAL COMPLICATIONS IN DISEASES OF THE MIDDLE EAR AND ACCESSORY SINUSES OF THE NOSE*

JOSEPH C. BECK, M. D.,
CHICAGO, ILL.

The most important causes of intracranial complication from the middle ear and nasal accessory sinuses, are suppurations, consequently I will confine my remarks to that subject and not take up the neoplasms, trauma, etc.

In the diagnosis it is important to recognize suppurative disease of the ear and sinuses, but this subject is not within the province of this paper, so I will satisfy myself by mentioning only that the presence of the pus from the middle ear and nose, and Roentgenographic examination are the most important signs of affections of these structures. The one symptom more than any other on the part of the patient of a threatening extension into the cranial cavity, is localized pain or headache, which is very persistent instead of periodical. Especially important is this in connection with the cessation or diminution of the discharge. The knowledge of the pathological change present in the sinuses and middle ear and mastoid, is of additional value as for instance, tuberculosis, syphilis and cholesteatoma.

The frequency of intracranial complication in suppuration of the middle ear is much greater

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than that following sinus disease about twenty-five to one in my experience.

The intracranial complication which I will consider are:

1. Meningitis.
2. Sinus Thrombosis.
3. Brain abscess.

The MENINGITIS may be serous or suppurative and later localized or diffuse.

The sinus thrombosis may be partial or perietal and complete with or without involvement of the jugular bulb and vein. The brain abscess may be extra-dural or genuine, within the brain substance proper. The complications may be further divided as to bacteriologic or etiologic factors as:

Streptococcic,
Staphylococcic,
Pneumococcic,
Tuberculous,
Syphilitic.

These complications may arise following acute, chronic and acute exacerbation of chronic suppurative of the ear and sinuses, meningitis and sinus thrombosis (this later condition is very frequently associated with a localized meningitis) are usually complications following acute or acute exacerbation of chronic suppurative of the ear and sinuses. Brain abscess, however, is most frequently associated with the chronic form of the ear and sinus disease. These, however, become more manifest following an acute attack of ear or sinus trouble. Tubercular and syphilitic meningitis are, however, chronic inflammations per se; but are also lighted up by the acute processes within the ear and sinuses.

The cardinal symptoms of any intracranial complications are:

1. *Pain or headache.* This may be localized or diffuse; it is, however, very persistent and quite intense. It is the recognition of this symptom that has helped me more than any other in suspecting intracranial trouble.

2. *Nausea and vomiting.* This symptom is quite constant, especially early in the disease and projectile vomiting is quite characteristic of intracranial pressure or irritation.

3. *General septic appearance.* This, of course, will vary in the different conditions under consideration, but in all it is quite manifest.

4. *The vision* is very frequently affected due to the choked disk that is present.

5. *Temperature, pulse, and respiration* are very frequently disturbed.

6. *Definite focal symptoms* of brain localization are of the utmost importance in the diagnosis.

7. *Blood and spinal fluid examinations* give very valuable information.

8. *Roentgenographic findings* are at times valuable.

9. *Exploratory operation and treatment* as in lues are at times necessary to make a diagnosis.

MENINGITIS.

(a) *Serous meningitis.* One of the first signs is the increasing headache at first localized, usually near the seat of the perforation or path of infection, and soon becoming diffuse all over the head. The patient loses his appetite, his tongue becomes coated, the emunctories become sluggish in their action and nausea is a very common symptom. The temperature rises and if the septic form is going to follow, this rise is often quite rapid, so that there may occur small chills from the infection of the cerebrospinal fluid. The pulse and respiration rate is now considerably increased. The patient is very irritable, restless and does not sleep. As soon as the fluid increases within the cavity there is observed the characteristic syndrome of rolling the eyes, especially upward. The neck is drawn backwards and finally the leg upon the thigh and thigh upon the abdomen. Attempts to straighten them out are resisted and appear to be painful—Kernig sign.

Stroking the bottom of the feet with some semi-sharp instrument or the finger-nail will cause the big toe to turn up instead of down—Babinski sign.

Taking the head and tilting it forward against the chest, will cause the limbs to be drawn up—Brudzinski sign.

All the other symptoms—as pressing over the peroneus nerve and muscle,—Gordon sign, which will cause the foot to be flexed, the stroking of the anterior tibial surface, Oppenheim sign, or the stroking of the region of the external Malleolus, Chaddock sign, will produce the same movement of the foot—all these signs, I say prove that the upper neuron is involved. The patient now will lapse into unconsciousness and be roused

with more or less difficulty to again relapse in the same condition. The pupils become sluggish in their action at first, becoming small, then irregular and finally dilated. Ophthalmoscopic examination may reveal a choked disk. Spinal puncture shows increase pressure by very frequently coming through the hollow needle with a spurt and is clear or slightly cloudy. Following such a puncture the patient is very often much improved for from one-half to a whole day, but the symptom soon return. A complete examination of the cerebrospinal fluid thus removed, will aid a great deal in diagnosis. This includes the following:

1. Remove about 25 c. c. at spinal puncture.
2. Make several slides and stains for organism, as septic and tubercular.
3. Examine and count the endothelial cells, leucocytes and pus cells.
4. Make cultures.
5. Make a Noguchi, butyric acid test for excess of albumin.
6. Make Lange colloidal test for excess of albumin.
7. Wassermann, Nonne and Noguchi test for syphilis.
8. Test for sugar.
9. Test for total acidity and relative acidity.
10. Cholin may be tested for.

In the serous form one will find the cells increased somewhat, especially the leukocytes, but the microorganisms are conspicuous by their absence.

The Lange (Colloidal-gold chloride) test will show the characteristic color reaction of a septic process.

The Noguchi (Butyric acid) test will be practiced. Excess of albumin.

The Wassermann, Nonne and Noguchi tests for syphilis are negative. (Unless such a case should be a complicated one).

The test for sugar is very important in that in serous meningitis sugar is present.

The relative acidity is not markedly affected and cholin is not present or if so in only small quantity.

(b.) *Septic Meningitis.* If this be *localized* and there be a collateral serous meningitis associated with it then the symptoms may be the same, as just described, however, the cerebrospinal fluid will show a greater degree of irritation and

the fluid may contain some microorganisms. The majority or localized septic meningitis cases, however, are not as severe in their course as the serous or diffuse septic forms. The one important symptom is the localized headache, which is quite persistent, and the greater rise in the temperature. There are undoubtedly many cases of localized meningitis, that show a perfectly normal cerebrospinal fluid and most of the cardinal symptoms absent and these are the cases that usually get well or lead to extra-dural abscesses, subsequently.

The *diffuse septic meningitis* is the most discouraging intracranial complication that we have to deal with, and the diagnosis as a rule is not difficult. It usually is preceded by the serous form but within a very short time develops the graver symptoms of sepsis. The most positive symptom is the spinal puncture. The fluid comes out under pressure but not as great as in the serous form, and it is turbid. The turbidity varies in degree, to the amount of infection. It has the appearance at times of pure pus, in fact that is what it is. Bacteriologically one will find many microorganisms of the character of the infection and leucocytes or pus cells are very numerous.

The sugar reaction is always absent and the acidity is much increased as is the quantity of cholin.

The pressure or irritative symptoms, such as the Koenig and Babinski tests as well as the pupillary reactions, are practically the same as in the serous meningitis only that they soon give away to the paralytic form, namely pupils dilate, patient is in a constant stupor or coma and the involuntary urination and bowel movements become very manifest. The patient is as a rule unable to take or be given nourishment. The outcome is in my experience, with one exception, always fatal due to diffuse cerebritis. I have had a case of diffuse septic meningitis in the early stages of a pneumococcic type, which I operated on by the Hayne's method of drainage of the cysterna magna, that recovered and I believe that the success in that case was due to the very early intervention because I have operated by the same method on eight other cases more advanced and of strepto and staphylococcus type of infection, that ended fatally.

SINUS THROMBOSIS.

This complication is the one that is recognized as giving the best prognosis because it can be very readily recognized and even exploration warranted to make such diagnosis. It most frequently follows or is associated with acute infections of the middle ear and mastoid process. The most important symptoms are the chills and fever of a distinct septic type and as a rule increasing in frequency. There is invariably a blood picture of sepsis, namely a very high leucocyte count and the polymorphonuclear type in marked excess. Blood cultures are as a rule positive of a bacteremia. If the process has extended to the bulb and internal jugular vein, then one may feel a thickening or cord-like mass along the anterior border of the sterno-clido-mastoid muscle. The fundus examination often reveals a choked disc especially on the side where the thrombosis is located. A symptom recently described by Beck of Vienna and Crowe of Baltimore and proven by me to be of positive value in several cases, is the production or increase of a choked disc by compression of the healthy internal jugular vein. Urbantschitsch has shown in quite a number of cases of sinus thrombosis that the blood clotting time is very much enhanced. This, of course, is true of any case of bacteremia or septic phlebitis anywhere in the body. I have proven this test to be of value to me in several cases of sinus thrombosis. The exploratory exposure of the lateral sinus is of distinct value and the only fact to remember is to expose a sufficient area so that one is able to deal with the sinus in case it be opened accidentally because such an accident when this precaution was not taken has led to serious consequences. The diagnosis of a thrombotic sinus when exposed is made first, by its discoloration, usually of a grayish pink. 2. It feels harder than normal and is not resilient when compressed; that is, it does not spring back. It however may be soft in case the thrombus has broken down and in cases of perietal thrombosis it may spring back because there is blood circulating through it. One will at times find a small collection of pus about the sinus, a condition known as, perisinus abscess and in many instances of this condition the sinus itself is not thrombosed. The puncture of the sinus by a hypodermic needle and attempt to withdraw some blood is not at present considered good practice owing to the danger

of infecting a noninfected sinus. An incision is considered a wiser plan and subsequently packing both sides (torcular and bulb) which are thus shut off from the general circulation. There are many instances of secondary infection by embolism either in or about the joints and infarction into the lungs, spleen, pancreas, etc., with the entire train of symptoms from such complications.

BRAIN ABSCESS.

This is most frequently associated with chronic suppuration of the middle ear and mastoid, and labyrinthine disease. As stated before we must consider two principal types, namely those outside the dura and those within. They may exist at the same time or the intradural abscess, especially in acute exacerbations may frequently follow the extradural abscess. The paramount symptom is the great pain in the head most frequently localized to or in close proximity of the abscess. I have, however, found several instances where the patient located the pain in the anterior portion of the head and operation or post-mortem disclosed it in the posterior cerebral fossa. This pain is not at all unlike that in brain tumor, and there are exacerbations in the headaches some times at night, or in the morning, and in one of my cases the patient would have about ten attacks of severe head pains within twenty-four hours and in the intervals be fairly comfortable. The next group of symptoms of importance are the focal lesions which will correspond to the anatomico-physiologic locations and actions. These focal symptoms will vary in degree in that they be either irritative or destructive. Thus a small abscess pressing over the motor area will cause clonic contractions on the opposite side of the body while a larger one will produce a constant contraction and a still larger abscess, especially if it be intra-dural, will produce paralysis of that portion of the body governed by that particular area. Again, if located in the cerebellar region, it will cause a train of symptoms of imbalance and loss of interpretation of direction which must be carefully differentiated from the irritation of the labyrinth. In this department much work has been done by Barany, Ruttin, Neumann and other Viennese, and many others, to make it possible to make a differential diagnosis and there is a great deal more to be done. One of the most important,

recent contributions in this regard is the pointing test of Barany's in connection with cerebellar lesions and the careful study and experimenting at every opportunity is very much recommended in order to familiarize oneself with this test. This in connection with the various labyrinth tests makes the differential diagnosis much more easy. One must remember that both labyrinthian irritation in connection with suppuration of the ear and cerebellar irritation from brain abscess may exist at the same time.

Intra-cranial pressure being increased in brain abscess will cause the cerebro-spinal fluid to be increased and found to be so by spinal puncture although no pus cells or microorganisms will be found unless there is also a concomitant diffuse septic meningitis or ventricular infection present. The ocular symptoms of intra-cranial pressure, as pupillary (often one large and one small) and choked disc, and usually present. The *pulse rate* and *respiration* will be affected as in brain tumor according to the size of the abscess. The larger the abscess the slower the pulse and respiration. The temperature as well as the pulse and respiration will vary as to whether the abscess be intra or extra-dural. Intra-dural abscesses will frequently cause considerable rise of temperature and acceleration of respiration and a remission when the process has become partially walled off. As soon as a fresh invasion of brain tissue takes place another rise of temperature etc., occurs.

Projectile Vomiting as in brain tumor, is quite frequently encountered.

The Roentgenogram, especially a stereo-scopic, will be of some value in cases where through its chronicity a change of bone by pressure has taken place or if one may follow the path of necrosis from the nasal accessory sinuses or the middle ear and mastoid process towards the brain. I will state, however, as I have stated on several occasions before, that not too much emphasis should be laid on the diagnostic value of the x-ray in intra-cranial lesions, especially abscess. I have been sadly disappointed in this great method of diagnosis (x-ray) and much annoyed at the positiveness of some observers without sufficient evidence.

Like in sinus thrombosis so in brain abscess one should not hesitate in the exploratory operation because waiting too long will often reduce the patient's ability to stand an operation later

on. Should one not find the abscess then the decompression has done a great deal to prevent destruction of brain tissue by pressure; besides, the patient will be very much relieved of the severe head pains. This may be said also of spinal punctures. In this way one may wait for development of localization for another operation. In conclusion I would like to repeat the words of Prof. Newmann, as to the differential diagnosis between meningitis, sinus thrombosis and brain abscess. "A patient who has meningitis is one that wishes to be left alone and allowed to sleep although when roused is not particularly irritable. If he has brain abscess then he is constantly very irritable and difficult to manage while a patient who has sinus thrombosis, when he is free from the chills and fever, is very pleasant, apparently well."

X-RAY DIAGNOSIS.*

HENRY W. GROTE, M. D.,
BLOOMINGTON, ILL.

In attempting to employ any modality in the field of medicine or surgery it is incumbent that a fair understanding be had of the physical characteristics of such modality. This is not the time nor place to exhibit argument whether each ion or electron in an excited tube is one seventh-thousandth of a hydrogen atom or like theories, but we are much concerned with any means which will help toward a positive diagnosis.

To appreciate these characteristics then, the mention of a few of these principles will not be amiss. Passing by the source of energy we are most concerned with the x-ray tube. Volumes, mostly of interest to the Roentgenologist, have been written on tubes; suffice it to say now that they concern us greatly since they are very often cranky and greatly inefficient, and a tube depends for its value upon its power to send a beam of x-light through an object subject to the wishes of the operator.

This power will often vary during an extremely short excitation even in the hands of the most skillful operator.

X-light travels in straight lines—it cannot be reflected, diffracted nor polarized, and of great

*Read before McLean County Medical Society, May 7, 1914

importance in diagnostic work, it penetrates all matter in inverse proportion to its density.

As to technique it is only necessary to mention that the object of which the radiogram is to be made must be clearly borne in mind, and the penetration power of the tube must be so considered and manipulated as to procure the kind of effect in contrast that is desired for the diagnosis. This will suggest to your minds the expediency of sending some clinical data with the patient when referring him to a Roentgenologist.

The diagnostic function of the x-light may for convenience be considered under two general heads;—fluoroscopic and radiosopic.

Since the emulsions on x-ray plates are several hundred times more sensitive than the retina, the radiosopic is the method of selection, excepting where movement is great, and even here the cinematograph is now being used.

You have referred a patient to Roentgenologist for a radiograph of a region or a part. After he has selected the proper tube and plate, has the patient properly placed, worked out the photographic details and presented to your inspection a negative, properly a Roentgenogram; of what diagnostic value might this be to you or your patient?

It should be superfluous to impress the necessity of practical experience in any branch of medical work, but the number of persons who seem to think they are or should be able to read any Roentgenogram simply as it were from first principles, impels the impressing of this point for the benefit of those who really wish to make the most of the very valuable assistance to be derived from a rapidly growing method.

This Roentgenogram is not a photograph, but is commonly called a picture. It is made by direct light and not by reflected light, so do not look for a so-called "likeness."

It is not a silhouette—a silhouette gives a shadow of the outline only, while the Roentgenogram reveals a series of superimposed and commingled shadows with lines of various densities.

Depths are suggested to the trained eye and contour is finely portrayed in stereoscopic views.

Neither is Roentgenography, geography—the regions are not mapped out with the names of the structures engraved in the various locations.

The Roentgenogram is a fixed record and is always original evidence and can be re-examined at will. It shows finer details and contrasts of shadow than can be noted by the naked eye.

The Roentgenogram does not show any positive evidence of disease—it shows departures from the normal and in most cases should be considered in conjunction with other observations and methods of diagnosis.

Density of shadow is a point to be remembered in reading a negative. A negative as the name implies shows in density the reverse of relative densities of the region exposed.

When dense tissue such as bone is interposed between the tube and the sensitized plate, much of the x-light is prevented from reaching the plate and a shadow of the bone is the end result; around the bone is the muscle of less density, which impedes the light less, hence less shadow; such are translucent. Again, air filled organs offer still less resistance to the ray and are practically transparent, and allow great chemical action on the plate and the result is a dense opaque image of that tissue. Thus clear transparent parts of the negative correspond to dense tissue and opaque shadows to translucent and transparent tissue—between these are all gradations from one to the other. All this leads to the relative shadows or contrast and means normal conditions or abnormal change.

Since the penetrative of the tube is not constant, shadows are not standardized, so it is often desirable, when any question arises, to expose the opposite part under exactly the same conditions.

Determining which side is right or left in the Roentgenogram may be impossible, but if advised as to position of patient or part, it is not difficult.

Exact dimensions of a part are not possible, unless we wish to enter a complex problem in perspective or triangulation, considering the eye in the position of the tube. This process is not practical in ordinary routine work and finds its best application in locating and measuring foreign bodies—particularly in the eye.

Stereoscopic views give the best dimension results in ordinary work, since then we have the relative position in space and relative size by comparison, and stereoscopic views are valuable as they give the surgeon correct anatomical relationships.

Examinations of the bones and joints form most of the routine work of x-ray laboratories and is much relied upon, so much so that as one writer expresses himself: "so definite and useful is the evidence thus obtained in obscure injuries, that we can well understand the fear that younger surgeons may learn to depend upon it to the exclusion of other methods of diagnosis of which it is well that they should also gain experience."

In fractures without displacement is found an instance of the value of the radiosopic method over the fluoroscopic. With the fluoroscope such a condition may easily be overlooked.

Comminuted fractures and fractures in the vicinity of joints are difficult, but x-ray diagnosis is the best method we have since other methods leave an uncertainty between fracture and dislocation or a combination of the two.

In joint cases in children the epiphysis and unossified cartilage must be taken into consideration.

Fractures at the base of the brain, bones of the face, laminae of the vertebrae and ribs should always be made stereoscopically, as a single view leads to error.

In diseases of bone the relative shadows of various parts of the same bone suggest departures from the normal; thus rarefaction suggests tuberculosis and sclerosis old inflammatory conditions.

Forms of periostitis are shown by a lifting or separation of the periosteum from the bone. Osteo-periostitis shows an additional thickening of the bone substance.

Syphilis of bone is more dense than tubercular bone. The shadow of sarcoma of bone is less than normal bone and early is hard to differentiate from syphilis, but later becomes irregular in density while gummata continue with their fairly regular density and later eburnation showing a very dense shadow.

Epiphyseal disease and rickets may give some trouble, but rickets gives a fairly clear but irregular outline, while in epiphyseal disease the outline is obscured.

Acromegaly is shown to be the enlargement of the extremities, and the group of bones forming the base of the brain and particularly of the sella turcica.

Joint diseases are fairly easy in the later stages,

as then the bone outlines are not sharp and show a characteristic "fuzziness." The earlier stages are evident by a cloudiness in the fluid contents and here again it is very useful to take the opposite joint for comparison, when a difference in the articular surfaces is seen. Osteoarthritis shows more distortion, and a tubercular joint usually shows disease in a nearby bone or periosteum.

Radiograms of ankylosis are not needed for diagnostic purposes as far as motion is concerned, but we can often learn the extent of ossification of bands of fibres and adhesions, and we know whether to keep out of the joint and are able to suggest a reasonable prognosis.

The discovery of loose bodies in the joint depends on their formation. Normal cartilage is transparent to x-light. Foreign bodies such as wood, glass, etc., can easily be seen.

Gout, while not being strictly a joint disease, should be differentially considered here, the gouty deposits being found on the bones and not in the joints and with sharp outlines, while in rheumatoid arthritis are seen the erosions of the articular surfaces.

Adhesions are translucent and difficult, but often the presence of shadows in abnormal places will suggest them.

Pus will exhibit a shadow and obscures outlines of parts while blood casts a denser shadow. Serous effusions rarely are diagnosed, but often suspected, because they cause pressure or dislocation of a part.

In the diagnosis of diseases of the chest, the x-ray is of great service and recently a number of operators have developed a good technique on the premise that practically all chest diseases are the result of pressure or variations, and dependent on the factors of light, shadow and motion.

Healthy lung is translucent, shadows of the scapulae, axillary folds and nipple soon become familiar, and being movable outside of the chest wall, enable their elimination from inside disturbances.

Advanced tuberculosis casts definite shadows—the more advanced the disease process the denser the shadow. Cavities are indicated by light areas in dense shadows; if calcification has occurred a

ring will be seen around the light area. In practically all cases of pulmonary tuberculosis the excursions of the diaphragm are irregular, that part on the affected side being the more rapid and limited. Empyema and abscesses are here to be differentiated, if of long standing the dense pus shadow will help and a joint consideration with the clinical findings will lead to a correct diagnosis.

The heart must be considered with the lungs; any displacement of this organ can be noted and variations in size readily found. An ingenious instrument called the "hear-see" has been devised. It is a type of stethoscope to be used with the fluoroscope. With the diaphragm of the instrument on the point where the heart shadow crosses the shadow of the fourth rib, the heart pulsation should be synchronous with the apex beat. Pericarditis is commonly diagnosed. Adherent pericarditis limits the heart motion and pericarditis with effusion casts a shadow around the heart shadow proper.

Aneurisms are readily diagnosed. Monnell states that this method of examination gives us greater assurance of the absence of an aneurism of the aorta in suspected cases than by any other evidence we have. Williams says that aneurism may be seen before there are any physical signs.

Mediastinal lesions are usually dense and differentiated by motion or lack of motion, and they usually displace other organs.

Foreign bodies in the chest have the same consideration as elsewhere—inside or outside the chest wall being the point necessary to determine.

Below the diaphragm in the abdominal cavity much research work has recently been done with the aid of the bismuth meal, the hollow viscera not being subject to x-ray shadow independently. It must be remembered that here is shown the silhouette only.

Size, position and motility of the stomach, attempts to differentiate between ulcer and carcinoma form most of the routine abdominal work and with correct technique is a most excellent means of diagnosis.

The literature on x-ray work of the gastrointestinal tract has become so extensive that it is impractical to analyze it. Each has his own tech-

nique and until recently has had his own nomenclature.

Every person has his own stomach, and the size, position and motility must be reconciled to his own physique and needs.

In attempting to diagnose gastric ulcer without the aid of the aspirator, the capsule of Schwartz is employed to determine the amount of free hydrochloric acid.

It is made of gold-beaters skin of known thickness and size containing a known quantity of pure metallic bismuth and pure neutral pepsin. The time required to liberate the metallic bismuth estimates the degree of stomach acidity. Two and one-half hours represents the normal time; more or less suggests hyperacidity or subacidity according to the elapsed time. Anacidity is considered present if the capsule remains undigested for more than five hours.

Motility of the stomach is watched by the aid of the opaque meal; changes in the position and emptying time when studied together furnish a very accurate method of estimating functional efficiency.

The time for the emptying of the stomach in persons who have never complained of any dyspeptic symptoms has been found to vary from one and one-half to six hours. This great variation of time shows the lack of a standard stomach.

Gastroptosis may give rise to distressing pressure symptoms, and being a wonderfully great reflex organ, the stomach is made to shoulder the blame of a symptom complex of visceroptosis. How much it is to blame can be shown by changing the position of the patient after the ingestion of an opaque meal.

The x-ray differentiation between gastric ulcer and gastric carcinoma is always an important one. In gastric ulcer is seen the hour-glass contraction and a peristaltic spasm. In gastric carcinoma the stomach silhouette is blurred by a fairly dense shadow presenting the peculiar finger mark outline. It also usually moves with the stomach.

Duodenal ulcer causes interference with the proper emptying of the stomach, usually hastening it, either because it prevents proper closing of the pylorus, or by reflex irritation. It then captures a part of the opaque meal giving the Roent-

genologist the shadow and adhesions if any, helping to hold the shadow for a time.

Roentgen diagnosis of gallstones is rarely made as only about 40 per cent. of gallstones cast a shadow; this reduces Roentgen findings to about 10 per cent. in all cases.

The following of the opaque meal through the intestine is productive of interest and exhibits optotic conditions and peristaltic interference. The x-ray has shown Lane kinks so often that some consider them of small pathological interest in the majority of cases. Dilated gut and especially dilatation of the cecum is commonly found, and the colon is nicely studied with the aid of the opaque enema.

X-ray discovery of neoplasms of the pancreas have been written about and suggest the future diagnostic ability of x-light.

The finding of an enlarged spleen in cases of leukemia, results in diagnostic satisfaction.

Kidney shadows are very common; size, form, and movability readily diagnosed. A kidney rotated either on its long or short axis is diagnosed by pyelography, a silver salt being used in solution for filling the kidney pelvis and then exposing it to the x-ray.

Renal calculi always cast shadows, and if present and not seen the fault lies in the operator's technique. The same may be said of cystic stones. The location of a stone in the ureter can easily be overlooked.

In thus presenting the ordinary use of the Roentgen method of diagnosis, I wish to remind you that many fanciful happenings occur in an x-ray laboratory and the reports of these are very apt to prejudice the minds of readers.

Roentgen diagnosis is not to be considered a rival of other clinical methods but a strong ally.

It is a method of inspection direct by the fluoroscopic method and inspection by proxy if you please by the radiogram.

All information obtainable by x-ray cannot be secured in every case; some cases present difficulties wholly absent in others.

Much information may be obtained by x-rays alone.

Much is often shown on radiograms, which is not as yet interpreted by the most expert, and immediate and great proficiency is to be expected.

THE CARE AND TREATMENT OF COMPOUND INFECTED FRACTURES.*

RODNEY J. BUNCH, M. D.,

TABLE GROVE, ILL.

The remarkable advance in the knowledge of bacteriology which has taken place in recent years has shed much light on the treatment of wounds. It is not my aim or purpose to go into the details of this historical phase but rather to consider briefly the rational method of treating an infected open fracture. Such injuries are quite common. Every doctor will meet them at some period in his practice and I know of no class of injuries which will give one more concern from the time of the first visit until nature has healed the member.

A compound fracture is one which communicates with the external world through a wound of the soft parts and when infected is accompanied by all the risks consequent to suppuration of bone and soft parts, together with a systemic reaction.

The cardinal principle in treatment is to arrest the infectious process at the earliest possible moment and prevent further invasion of micro-organisms and destruction of tissue. There are two broad classifications of compound fractures: 1. Those caused by direct violence. 2. Those due to indirect violence or from within outward. I mention these because it has an important bearing on the probable management of wounds to soft parts and our method of reduction and retention of the fracture. In the fracture by direct violence the wound is usually large and adjacent tissues contused and devitalized, offering little or no resistance to micro-organisms, and it is in most cases accompanied by extensive slough.

The picture is quite different to those met with in indirect violence, where the infection is more limited. The keynote of success in the treatment of all compound infected fractures I believe, lies in proper drainage together with rest and proper after-treatment. Our efforts are often unsuccessful in trying to do too much with a fracture when the process of infection is being limited by nature. We should always determine, if possible, the manner in which the injury was sustained.

*Read at the meeting of the Fulton County Medical Society, July 1, 1913.

briefly outlining to patient and relatives the nature and gravity of the injury, and make a careful prognosis. Some inquiry should be made with reference to occupation of injured persons. In all compound infected fractures from direct violence, antitetanic serum should be used to immunize the patient; 1,500 units usually suffice.

GENERAL TREATMENT.

Each case perhaps, needs a definite line of treatment and I shall only speak of the measures in a general way. In every open wound there is regularly an escape of fluid rich in albuminous elements corresponding in amount to the size of the wound and we must provide suitable channels for the escape of this drainage in some form. This brings us to the consideration of material for drains, and their application. Of the many forms of tubes which have come into use probably the most practical is the rubber tube through whose lumen gauze wick has been passed and anchored by sterile safety pins to prevent its escape or displacement. The tube should be fenestrated in order to allow the gauze to come in contact with the secretions on all sides of the tube, thus facilitating drainage.

Whether the hard or soft rubber tube shall be used will be determined by the position which the tube must occupy. If it is necessary to bend your tube the soft tube is preferable. Glass tubes are not so satisfactory as the rubber, owing to their liability to break. Aluminum is fairly satisfactory, but hard to bend and cleanse, hence more or less objectionable. Generally speaking, all compound infected fractures should have at least one through and through drainage tube supplemented by a gauze wick to prevent its collapse. However, when the glass or the aluminum tube is used this is not so essential. When gauze drains are used they should be covered with rubber tissue in order to prevent adhesions and facilitate their removal; it also allows the pus to escape by capillary attraction and prevents the meshes of gauze sealing together as they soon become saturated with secretions. Should this happen your drain is a detriment, as it dams back the pus.

Rubber tissue and gauze rolled into the form of a cigarette are quite satisfactory for drains as such material is usually at hand and costs less than strands of silkworm gut. The question of

time that drains should be left in place must be governed entirely by the progress of the case; as long as pus escapes an exit must be provided. My custom has been to gradually remove them as soon as the general pus accumulation about the wound begins to lessen and the systemic reaction of patient shows marked signs of abatement. Each day after this the drainage tube is lifted and a small portion cut away till, finally the entire tube is disposed of.

Every compound infected fracture should have iodoform gauze or a similar kind packed loosely about the drainage tract. This acts as a germicide, promotes drainage and stimulates granulation.

"Shall a compound fracture be irrigated, and, if so, what is the best method, and what solution shall be used?"

So many antiseptics have come into use within the last twenty years, one dare not attempt to discuss them in detail and I shall only speak of the more important ones.

The so-called aqueous solution of iodine most nearly corresponds to all the requirements, namely, it is germicidal, acts quickly, is relatively non-toxic, easy of application, and moderate in price. Potassium permanganate and bi-chlorid find many advocates and where extensive tissue necrosis has taken place their de-odorizing power must be admitted and I have found them most useful. Lysol in 0.25 per cent. to 2 per cent. aqueous solution is an excellent and relatively non-toxic antiseptic, and on account of its cheapness and non-poisonous character is well adapted for disinfecting and cleansing purposes instead of carbolic acid. Peroxide of hydrogen is not so satisfactory owing to its unstable character and is rather expensive.

We recognize that an absolute success in an antiseptic has not as yet been obtained, and when one is in doubt as to the solution to use, it is a good plan to use the ordinary saline solution.

Only in severe infections should daily irrigation be kept up, and then care must be exercised lest too much force is used. This has a tendency to break down Nature's protective wall, and allows infection to spread. My custom has been to irrigate by the saline drop method, when the injured member can be suspended or fixed on a rubber cushion or pad. Such a method will be

found excellent in those injuries involving joints, shaft of femur, humerus, hands and feet. This allows as nearly perfect and continuous drainage as possible and unquestionably preserves the patient's vitality and has a tendency to shorten the infectious process. An ordinary fountain syringe with rubber tubing and clamp is all that one needs to carry out this treatment. The injured member must be either suspended in a suitable open splint, or laid upon a "Kelly pad," or cushion. If you don't happen to have this, ordinary rubber sheeting or oilcloth will answer quite well. This is essential to avoid soiling bed linen and wearing apparel. A bucket, or slop jar is placed at the side of the bed to receive the solution as it drains from the valley or trough of your rubber. With the fountain syringe elevated three feet after being filled with a solution whose temperature should be such that the hand can be held in it with some discomfort, by the time it has traveled through the length of the tube it will be tolerated by the patient fairly well. The syringe should be refilled from time to time with a new supply of warm saline solution, and where we have access to an electric current, the ordinary electric light bulb can be placed in the syringe and in this way solution kept warm. After you have kept up the irrigation for several hours, you will notice a fall in the patient's temperature and pulse rate. The clouded mentality and delirium will begin to clear up. You may then discontinue the irrigation for three hours, and allow your patient to rest. At the end of this time resume the irrigation. The time irrigation should be kept up will have to be governed by the severity of the case, usually from three to five days being sufficient. I have used this method in such severe cases of sepsis and delirium that restraint of patient was necessary and the results are gratifying. I have purposely omitted the tabulation of cases and review of the literature and have tried to give you my personal observations and experience during the four years of my service at the St. Louis City Hospital and three years of private practice. I have not touched upon the subject of stimulants, nourishment, saline transfusions and irrigations per rectum, nor do I wish to discuss the subject of treatment with serum and vaccines. Such complications as general sepsis, tetanus, gangrene, thrombosis and embolism,

delayed union, neuritis, malignancy and muscle atrophy I have not spoken of, as they are well treated under standard text-books of surgery and internal medicine. Such infections as lues, tuberculosis, and malaria, when complicating a fracture must be treated along medical lines, and it is not my province to discuss them at this time. Each fracture should be reduced and kept there at the earliest possible moment; but in a compound infected fracture we must remember that we not only have a fracture to deal with, but a septic process as well, together with its destructive action on bone and soft tissue. In the reparative process marked changes occur in the marrow and periosteal cells and there is abundant granulation tissue, bone softening occurs, and the disappearance of lime salts by absorption. The problem of overcoming the muscular rigidity is an important one, and in the late un-united fracture often very difficult to deal with.

AFTER-TREATMENT

is often more important than the early or primary treatment and little mention is made of it in a general way in our standard text-books. You will be convinced of this if you examine a few healed fractures whose results from an anatomical standpoint appear to be good, but the joint may be ankylosed, which I believe is due in a large number of cases to our failure to carry out the proper after-treatment. D. C. Smith has said that a good functional result after a fracture is better surgery than an anatomically perfect one with little or no function. Murphy and others have been able to correct such conditions with a fair degree of success by operative interference. However, it is far better to prevent this unpleasant state of affairs by proper early treatment along the line of massage and passive motion.

Just at what time and how much of these measures are to be used will be determined by the case in question. Massage should be as nearly free of pain as possible and should be begun as soon as the swelling and inflammation shows signs of subsiding and keep it up for some time after the appliances have been removed. This prevents adhesions and contractures, hastens absorption, and improves muscle tone. Generally speaking fractures near and involving a joint should have early cautious massage. Do not

wait till force is required or a surgical procedure is necessary to relieve a stiff joint. In conclusion I wish to state that one's own judgment in the large number of cases must play an important part in the handling of these cases, and even then one is taxed to the utmost, which at times will be aggravated by a stubborn patient or an anxious relative.

INDICATIONS FOR THE USE OF PITUITARY EXTRACT WITH REPORT OF CASES.*

HARRY LEE HOWELL, M. D.,
BLOOMINGTON, ILL.

Having employed pituitary extract fairly extensively covering a period of two years or more, I come to the conclusion that its indications may be briefly summed up as existing in all cases of prolonged labor from uterine inertia or uterine contractions of insufficient expulsive force, with the exception of the cases in which there is some mechanical obstruction or other marked abnormality which constitute the contra-indications and which will be mentioned as such, at a later time.

In addition to this, it will be found of service in cases where it is necessary to induce labor either at once or before term, other things being equal, in post-partum hemorrhage at term, or in hemorrhage during a miscarriage, and while not so positively active may be tried as an emmenagogue, where emmenagogues are needed.

I have also in one instance used it with good effect in conjunction with gastric lavage, in a case of post-operative intestinal atony threatening acute dilatation of the stomach, although it is difficult to determine how great a percentage of benefit obtained from the lavage alone.

There are also other indications claimed for it, but as my experience with it has been limited chiefly to obstetrical cases, I shall confine myself largely to its uses in this particular branch of our work.

I wish to make it clear that I in no wise pose as being authoritative in the use of this product, but trust simply that the report of a few cases in which I have used it may prove of interest to

those who may not have adopted it, and from those who have I shall be glad to receive either corroboration or less satisfactory reports.

I sometimes think we are too ready to take up and experiment with new preparations, and yet there is the possibility of the other extreme, of our being too slow to do so and falling into the habit of criticising or condemning new procedures without having investigated or in any manner tested their virtues, and I know of no better way of separating the wheat from the chaff than that of frankly comparing results.

Case 1. The first case I wish to report is that of Mrs. T. P., a large primipara, 22 years of age, with a history of kidney trouble, and one of the few whom I have had any difficulty in persuading to submit regular specimens for urinalysis.

There was every reason to believe that she had gone three weeks over time. I was called to see her and found her complaining of great nervousness, headache, dizziness, insomnia, and scanty urination.

Examination revealed a living child in normal position. Pelvic measurements above the adequate, extremities enormously edematous, the ankles measuring thirteen inches. Temperature normal, pulse full and bounding, membranes intact, and no cervical dilatation. Specific gravity of urine 1010 and loaded with albumin.

The patient was, of course, on the verge of eclamptic convulsions, and I immediately decided to send her to the hospital and induce labor. At about 11:30 a. m. I dilated the cervix slightly, tightly packed it with gauze and administered one tube of pituitrin, with no results in the way of pains. At 9 p. m. I gave a second tube of pituitrin with good results in fifteen minutes. At 2 a. m. removed the gauze pack, which was lying loosely in the vagina, and found complete cervical dilatation with head half way out of cervix, pains frequent and severe. At the end of another hour, the occiput making slow progress under the symphysis, applied low forceps and easily delivered in fifteen minutes. Repaired a slight tear of the mucous membrane with one silkworm gut. The baby was alive and healthy. After delivery the mother's eclamptic symptoms rapidly subsided after using copious saline enemas, and an uncomplicated convalescence ensued.

Case 2. Mrs. D. G., primipara, 20 years of age. Light nagging pains started in the early morning, eight days before the approximated date of labor. Pains continued light and irregular for eight hours, accomplishing nothing but fatigue to the patient. The presentation and measurements being normal, I administered pituitrin at 11 a. m. with very prompt increase in character and frequency of pains. At 2 p. m. complete cervical dilatation, with head entirely out of cervix. From this point, however, the progress was slow in spite of good adequate pains. At 3:30 p. m. the fetal heart tones becoming indistinct.

*Read before the McLean County Medical Society, June, 1914.

I feared trouble and decided to terminate labor with forceps. This, to my surprise, I found rather difficult for low forceps. Upon accomplishment of delivery of the head, however, the difficulty was explained by rather an underlength cord twice around the neck which, I am sorry to report, resulted fatally to the baby, as all attempts at artificial respirations failed to resuscitate. Mother's recovery was uneventful.

Case 3. Mrs. E. D., primipara, aged 23 years. Indications for the use of pituitrin in this case very similar to those in case 2, except that the light, irregular pains extended over a period of two days with six and eight hour intervals of complete cessation. In the evening of what constituted the beginning of the third day, pituitrin was administered with remarkably prompt results, pains increasing in about six minutes. At 1 a. m., owing to the fatigue of the mother due to the forty-eight hours of irregular labor preceding the administration of pituitrin, low forceps were applied and the head assisted under the symphysis. Child was alive and strong and the mother's convalescence normal.

Case 4. Mrs. P. C., multipara, aged 25 years. This was a case of premature labor, the membranes rupturing in the absence of any pains Dec. 21, 1913, during the seventh month of pregnancy. Patient was sent to the hospital and for a period of four days there were light irregular pains for two or three hours with intervals of from six to twelve hours without pains. On the afternoon of Dec. 24 there was only about two fingers dilatation. One tube of pituitrin was injected and good pains ensued in about three minutes. In exactly one hour a four and one-half pound male child was delivered spontaneously. Child lived four months; mother's recovery was normal.

Case 5. Two-para, aged 25 years. Pains nagging and irregular for about fourteen hours. Presentation normal. Dilatation three fingers. Pituitrin was administered and pains became severe within two or three minutes. Spontaneous delivery of a normal sized, healthy child in an hour and thirty-five minutes.

Case 6. T. S., primipara, aged 34 years. Five days past due, membranes ruptured spontaneously without pain and while patient was sleeping at 12:30 a. m. Pains set in about 3 a. m., becoming fairly severe and regular by 7 a. m. At 8:40 pains only three or four minutes apart. Examination revealed internal os well effaced and about two fingers dilatation, but during a pain it was found that the head, which was normally presenting, was not engaging well and remained two inches above the cervical ring, no fluid escaping. Pituitrin was administered, and a strong healthy child was spontaneously delivered without laceration at 11:40 a. m. Convalescence normal.

Case 7. Mrs. C. B., multipara, aged 26 years. This was a case of incomplete miscarriage at about the second month. I was called on account of a severe hemorrhage in the early morning. Found the patient very pale and almost pulseless. Bed saturated with blood and still bleeding profusely. Just as I arrived patient fainted for the fifth time. Pituitrin

was injected and the uterus very gently curetted with a blunt curette and placental forceps without anesthesia. Considerable placental tissue and membrane were obtained, after which the uterus was tightly packed. No further hemorrhage occurred and further progress of the case was normal.

Case. 8. A case of delayed menstruation into which I knew positively pregnancy did not enter. Severe cramps which are always present in this particular case and an otherwise normal menstruation started within fifteen minutes after the administration of pituitrin, which was purely an experiment and the first time I had ever used it to meet this requirement. Recently I have tried it again as an emmenagogue in a patient aged 42 years who, I am satisfied, is entering the menopause and who was having all of the congestive phenomena of this condition, but with disappointing results, as two injections twelve or fourteen hours apart produced no results.

The contraindications to the use of this preparation are any mechanical obstruction or other abnormal condition which makes delivery through the normal channel in the least doubtful, viz: contracted or deformed pelvis, abnormal presentations, multiple pregnancy, etc., and I believe that ordinarily it is best not to use it during the first stage of labor. I would never use it in a primipara in the absence of pelvic measurements, and to use it in a normal case that is progressing satisfactorily without it, is obviously useless.

The only criticism I have heard on the use of it is that cases have been reported, very few in number, of rupture of the uterus. I can well believe that this is a possibility if there is any obstruction in the canal or any presentation which could not be reasonably promptly overcome by the use of forceps as an adjunct. One criticism that I might possibly add is perhaps a slightly greater tendency to cervical laceration, although such has not been my experience.

In conclusion I will state that pituitrin has become a portion of my armamentarium. I would almost rather go to a confinement case without my forceps than without it. I do not believe that it can ever take the place of forceps entirely, but I think it reduces the percentage of cases in which they have to be used; that it makes forceps deliveries easier where they do eventually have to be applied; that it minimizes post-partum hemorrhage, and furnishes an excellent means of controlling them after they start; that patients who have it, show less fatigue following labor than those who do not; and that

many patients by its use may be saved many hours of weary heart-breaking suffering.

SOME OF THE COMMON CAUSES OF SLOW AND DIFFICULT LABOR.*

E. L. BROWN, M. D.
BLOOMINGTON, ILL.

No attempt will be made in this paper to review all the causes of difficult labor, but only of such as have fallen to my lot to deal with during the year 1913.

First: Weak or insufficient pains. The uterus may be small and not have sufficient muscle power to do efficient work, or the cervix may be long and rigid, or the pains may be wild and irregular. The woman may hold back or resist through fear, or she may be one unduly hypersensitive to pain, and scream, toss wildly about before any real good labor pains have begun.

The weak pains may be helped by quinine early, later by ergot. A rigid cervix may need some help in dilating by the fingers patiently assisting. The fearful should be encouraged, and the hysterical left to themselves until help is really needed.

One case that I saw had extremely hysterical contortions. These were controlled by H. M. C. gr. $\frac{1}{8}$ at first. Later chloroform with each pain kept her reasonably quiet. Sometimes a very little chloroform will take away all the nervous fear and secure the patient's help.

Second: A transverse position of the child may delay labor for hours or days. In those cases, where the physician is not called until labor is well advanced, a woman may wait until a shoulder is pushed well down into the pelvis. Any physician can readily diagnose and correct this trouble if called in time, but it is sometimes very difficult to turn after the waters have broken, and the more so the longer the case has been left to nature. I saw one case left by a midwife until the child was dead, and a shoulder presenting at the vulva. Embryotomy saved the mother. In one case recently the waters were broken two hours before I was called. One hand was outside, and it took slow, hard work under complete anesthesia to change the position and obtain a living child.

Third: Face presentations are not so common as the transverse, but may be much harder to correct, because less often discovered early. If discovered before the head has engaged in the pelvis, it can easily be changed to a vertex presentation; but if the waters are gone and the head far down, a face presentation is very difficult. Combined internal and external manipulation will effect a change in some cases, and some cases will not stay changed, but will recur unless held down by external pressure. These should be extracted at once by instruments. These children will usually hold the head back abnormally for a few days. I saw two cases of face presentation last year neither of which were especially hard to correct.

Fourth: Perhaps one of the commonest causes of slow or delayed labor, and one making the woman suffer for days often and sometimes two or three weeks, is the displacement of the os uteri upward and backward. This allows the descending head to be caught in a kind of pocket by the distention of the anterior lip of the cervix. There is little or no opening of the os until labor is far advanced after prolonged suffering. This tedious delay and needless pain may usually be avoided, if the physician will take the time to hold the cervix forward for one or two hours, and meanwhile assisting the dilatation as the pains occur. One can often get a history, in multipara, of former labors lasting several days, and such a woman promptly delivered is a perennial advertiser for her doctor. Several of these cases came under my care last year. It is a tiresome job holding the cervix forward, yet, it saves hours of pain for the patient and hours of time for the physician.

Fifth: Missed labor is not a fiction. Four times within a year have I found labor occurring at ten months. This was proved by the history, by the date of last period, by the date of quickening, and especially by the development of the child, as the closure of the fontanelle, the very long hair and nails, and the weight of the child. These cases are nearly always forceps cases, and often very hard ones.

Two cases with this difficulty I saw about a year ago, both women were multiparae, foreign born, with large roomy pelvis. Both were delivered by forceps under chloroform with no spe-

*Read before McLean County Medical Society, June, 1914.

cial trouble. The babies both had rigid skulls and looked like month-old babies. They weighed $11\frac{1}{2}$ and 12 lbs.

Another case of missed labor occurred in a small primipara, and was very difficult. The mother suffered no apparent injury, and was up in the usual time, but the compression was so great that the child never breathed. There was no trace of the fontanelle; weight, 13 pounds.

All of these had some signs of labor at about the ninth month, but not enough for them to call me.

One other case of missed labor is worthy of special notice, and gave a very unusual history. The patient's mother had seven pregnancies. All seven were delivered by forceps. All babies were very large—some were dead before birth, and only one lived. She is a very large woman; height 5 ft. 10 in.; weight, 230 lbs. There is no doubt in my mind that she went ten months. In a former pregnancy she had been delivered by instruments of a dead baby. Labor came on one week after last motion was felt, when the fetus had probably died. The pains were very hard and dilatation was prompt and good. The head came rapidly down to the vulva, where it stopped, notwithstanding exceedingly hard pains. Then under chloroform the head was delivered by forceps. It was enormous. The skin was peeling, which showed the fetus was dead for days. The shoulders were too large to come out, although the pelvis and vagina were unusually large. The head and both arms and shoulders were successively removed with the hook. Even then, with the chest empty and collapsed and the hook fastened under the ribs, it took the hardest kind of work to deliver the abdomen and hips. The pieces were gathered up and weighed 16 pounds. I have delivered several hundred women, but I never saw any child anything like so large as this one. Should this patient again become pregnant, I should recommend that labor be induced at eight months.

Sixth: Another common cause of slow and hard labor is a contracted pelvis. Not many native-born American women have deformed pelves, although occasionally we find one with the underangle of the pubic bones too acute, making the outlet of the pelvis narrow. They may require a low forceps operation; but among our

foreign-born women we often find a really deformed or contracted pelvis. A small child may be born without instruments if the contraction is not too great. Usually these conditions will require forceps—whether the narrowing be from front to back or from side to side. Some years ago I saw a case that was too contracted for any child to pass through, and by separating the symphysis subcutaneously, a living child was obtained. The past year I have been fortunate enough to meet only two cases of contracted pelves, neither of which required more than a common forceps operation.

Other causes occasionally delay labor, but those mentioned are the commonest ones. A short cord I have seen hold back a child until it broke and a blue baby was born.

Two or three years ago I had a case of spina bifida, in which the sack as large as the child's head arose from the back of the neck. After the head came out it was impossible to get the body until the sack was discovered and opened.

Another unusual case recently was one of eclampsia. There was so much edema that it was hard with instruments to deliver a small child. Although there were two convulsions before birth and several afterward, both mother and child survived.

These cover the ground of my experience with slow labors for the year 1913. Out of a total of 107 cases, there were 16 difficult, 8 of these required forceps; 4 children were dead before birth from unknown causes; one died from compression of skull at birth; one embryotomy on a dead child; 2 face presentations; 2 transverse; 3 breech; 2 contracted pelves; 12 with weak or insufficient pains; 6 cases with cervix too far backward. No maternal deaths, and no case of puerperal fever.

The Red Cross Seal on your Christmas package sent by mail should bring an added thrill of pleasure to the recipient of your Christmas cheer.

Do not forget to visit the Public Health Exhibit at the City Club, 315 Plymouth court, open from December 1 to January 16. It is an exhibit well worth visiting.

Visitors should ask for and procure the handbook, before starting in to study the various exhibits. Readers of this Journal may obtain copies by postal request to the secretary of the Department of Health, Room 710, City Hall.

ILLINOIS MEDICAL JOURNAL

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Society proceedings and news items to Dr. Henry G. Ohls, Managing Editor, 927 Lawrence Avenue, Chicago.

JANUARY, 1915.

Editorials

SECTION ON PUBLIC HEALTH AND HYGIENE.

About two years ago there was organized in the Illinois State Medical Society a new section on Public Health and Hygiene for the purpose of studying the broader subjects pertaining to the health of the community. And on account of its being so closely associated with preventive medicine on the one hand and the greater subject of public hygiene on the other, this section is destined to become a most powerful influence for good in the state society within the next few years. It is entirely unnecessary to enter into the details of the broad field which this section will cover in its papers and investigations, but to enumerate a few of the more important subjects will assist the members in gaining a closer understanding of the broad plans which are being laid for this great public body, and to enlist the interest and support of every member of the state society in so noteworthy an undertaking. And since this program will be given on so important a day of the state meeting as Wednesday, May 19, 1915, and at an hour when the sections

on medicine and surgery will be in full swing, this section is entering directly into competition with these older sections for the attendance of all those who are vitally interested, not merely in the curing of disease, the alleviation of pain or the amputation of a member of the human anatomy, but in a far more important series of subjects appertaining to the welfare of the community: Public Health and Hygiene; Preventive Medicine, if you please; Vital Statistics; Water and Milk Supplies of cities and towns and the diseases which often follow in their wake; the Disposal of City Wastes, which includes both garbage and sewage and numerous other public questions.

The contributors to this program will include men of the very highest standing in their particular fields of work, while such institutions as the University of Illinois, the Illinois State Board of Health, the Chicago Medical Society Milk Commission and several other well-known institutions will be represented by men who have gained their spurs by merit. And who can afford to miss such an array of public health questions as will be prepared for discussion at this meeting? Every county society in the state should have at least one representative present at this meeting, while every city and town in the state should send a representative to hear these important papers and to enter into the discussion of so vital a subject as public health.

All those interested in this great subject should keep this meeting in mind, watching our columns for further important announcements.

OSTEOPATHIC PRACTICE.

Dr. W. C. Swartz, osteopath, will be absent from the city Monday, December 14, to Monday, December 31, taking post-graduate work in the Chicago college of osteopathy. The work Mr. Swartz will do there will be under the directions of the most famous men in the osteopathic profession, who will discuss the underlying principles of the relief of catarrh and deafness. These instructors are the men who have made the hitherto unknown record of relieving deafness. In hundreds of cases treated these men have made the wonderful record of relieving 75 per cent of the cases treated. These men are coming to Chicago to give the results of their skill and research to the osteopathic profession. Always ambitious for the very best for his patients, Dr. Swartz will be on the ground and will get and bring back

to Danville the very best to be had in his line.—*Danville Press*.

We congratulate the gentleman upon the vast knowledge he will attain in the two weeks' course, and also in being associated with such distinguished record-breakers. Truly, to be able to cure 75 per cent of deaf patients is no mean accomplishment and if the gentleman can but convince the good people of Danville of such powers, what a lot of second-hand ear trumpets will be for sale or for gratuitous distribution through the medium of the "Helping Hand" columns of the daily press.

Aside from the advertising ability displayed by the above—and we must say that the osteopaths are masters of the advertising art—there is another question brought to mind. Before every legislature for several years there have been presented many osteopathic bills, and among them is usually one asking for a special examining board for osteopaths and other cults, each claiming they do not practice medicine nor surgery, and begging the privilege of some other than the regular way of obtaining a license to practice osteopathy, chiropractics, naprapathy, or other similar practices, whatever they may be. When these irregular practitioners are given a license, they immediately forget they did not want to practice medicine nor surgery.

We presume the same grist of such bills will again be presented to the legislature soon to be called, and the medical profession of Illinois must be alert. There must be maintained but one entrance to the practice of medicine by any method in Illinois. When an applicant has fitted himself so that he is able to pass the required examinations as given by the state, then should he be protected from others gaining entrance by some short route. We hope soon to see all matters pertaining to public health questions under the control and supervision of one board.

MR. HANSEN'S PAPER.

At the annual meeting held in Decatur last May, Mr. Paul Hansen, engineer of state water survey, read a paper before the public health section, relative to an epidemic of typhoid fever in Rockford.

Quite a large part of this very interesting paper consisted of charts and a map, which, to re-pro-

duce, would require considerable space—rather more than the JOURNAL could give it.

The paper has been published in full in pamphlet form, and any one wishing a copy, may obtain it by writing to Mr. Hansen, Engineer of State Water Survey, Urbana, Illinois.

We regret that it was impracticable for the JOURNAL to publish this paper, and hope that our members wishing the paper will apply to Mr. Hansen for a copy.

ACTIONS FOR CIVIL MALPRACTICE.

Fifth Article.

ROBERT J. FOLONIE, LL. B.,
CHICAGO, ILL.

Claims of the kind under consideration are sometimes honest in their origin, from the viewpoint of the patient. It will not do to say that every claim for malpractice is from the beginning an attempt to blackmail, although even in honestly asserted cases there is a tendency to exaggerate—sometimes intentionally and sometimes an unconscious outgrowth of brooding over fancied grievances.

It must be borne in mind that etiological problems, sometimes difficult for the physician, are entirely beyond the understanding of the layman, who most often has no knowledge of even the term "etiology," much more its varying ramifications.

A case which I believe was originally brought with an honest belief that it was entirely justified, was the case of Drs. P. and M. The former was called in attendance upon the case of a beautiful little girl afflicted with diphtheria. He called in the second physician to assist. This was in the early days of antitoxin treatment and at a time when its use was much more uncommon than at present. An injection in proper amount was made into the thigh and a prompt cure of the diphtheria resulted. After the cure was virtually complete, a dry gangrene resulted in the same leg into which the injection had been made, and amputation above the knee was performed by another surgeon.

The coincident facts of the loss of the leg into which the needle has been inserted, created an immediate assumption of a causal relation. No other hypothesis was considered.

A lawyer was employed who adopted the same

hypothesis and he found physicians who would support the hypothesis, dependent, however, upon premises as to which the lawyer was presumably not informed. Before this stage of the case was reached, a suit had been pending for some years. The physicians consulted placed in the hypothesis upon which they must act, intervening sepsis, and a condition of sepsis was recalled.

Further probing into details as to the causes of sepsis, recalled to mind points not previously brought out, i. e., that the bare point of the needle was felt with bare and unwashed fingers, that the needle was laid upon a dirty table before being used and similar details not theretofore in the case.

The existence of such facts was entirely denied by the attending physicians and the jury found with the physicians that they had not so misconducted themselves.

It may be imagined what difficulty would exist in visualizing to a jury a case of diphtheritic thrombosis, and the ease with which a description could be made of a dirty table and dirty fingers, with both of which the jury are presumably acquainted.

It is to be borne in mind in such cases that the patient and the jury know nothing whatever of emboli or thrombi, and while it is always well to take the patient into confidence, no explanation in such a case will be accepted, but it will be looked upon as an effort to blind them to the real facts. When such a situation arises there is no recourse for the physician, except to place himself in competent hands and steel himself for a lawsuit.

BIG EXCURSION TO CALIFORNIA.

CHICAGO MEDICAL SOCIETY. PLANNING TRIP TO PANAMA-PACIFIC INTERNATIONAL EXPOSITION—MEMBERS TO ATTEND EXPOSITION AND CONVENTION IN A BODY.

Arrangements are under way by the Chicago Medical Society for a big personally conducted tour to the Panama-Pacific International Exposition and the convention, to be held in San Francisco week of June 21, 1915.

An all expense trip arranged by the Gregory Tours Company, who have been officially appointed "Tour Agents" for the Panama-Pacific International Exposition, includes first class railroad ticket between Chicago and San Francisco and return, Pullman standard

sleeper to San Francisco and return, transfer of member and checked baggage to and from hotel in San Francisco, seven consecutive days at the Hotel Plaza in San Francisco, including breakfast, seven admissions to the Panama-Pacific International Exposition and twenty admissions to attractions within the exposition grounds.

Each ticket includes side trip to Los Angeles and San Diego and return. The cost as outlined will be \$154.00.

A special train will be furnished for 125 members or more. The train schedules will be arranged so that the scenic delights of Colorado will be viewed by daylight. There will also be a daylight ride through the Sierras to San Francisco, giving views of the greatest scenery in America.

This trip will be personally conducted by a competent director furnished by the Gregory Tours. It will not only be a pleasure and business trip, but an educational one, and every effort should be made by the members of the association to make it a complete success.

Following you will find a reservation blank. Please fill this out and accompany it with your check for \$10.00 to secure your hotel reservation in San Francisco.

EXECUTIVE COUNCIL.

Please reserve accommodations for persons on our Chicago medical special train to San Francisco.

I enclose herewith check for \$....., being a deposit of \$10.00 each on reservations.

Signed.....

Address.....

City.....

(Chicago Medical Society Special.)

Date.....

Make all checks payable to the Gregory Tours, 1104 Lytton building, Jackson boulevard and State street, Chicago. For further information telephone Wabash 5157. Do it now.

Your reservation may be transferred any time prior to ten days before leaving Chicago.

TUBERCULOSIS NOTES.

Beifeld reports that the whispering voice will often bring out the significant rales of apical tuberculosis when other methods fail.

Beranek's tuberculin is strongly recommended by Fleming (Edinburgh Medical Journal), causing rapid fall in temperature and improvement of general condition of patient.

The use of the carbon arelight as a method of artificial heliotherapy in the treatment of lupus and of bone and joint tuberculosis, has achieved remarkable results in the hands of Reyn and Ernst (Hospitalsteube, Oct. 21).

A positive Von Pirquet reaction does not always mean an active tuberculosis, nor does a

negative reaction eliminate tuberculosis. This test requires a great deal of fine discrimination and must be understood perfectly in order to interpret results obtained correctly.

Atropine sulphate gr. 1/33 to gr. 1/25 is a sovereign remedy in pulmonary hemorrhage.

The nitrites, producing pulmonary vaso-constriction and at the same time peripheral and splanchnic vaso-dilatation, meets the requirements of an ideal remedy in pulmonary hemorrhage.

Knopf recommends for the cough of tuberculosis, before resorting to internal remedies, the inhalation of the following.

Eucalyptus oil, 3 parts,

Spirit of chloroform, 2 parts,

Menthol, 1 part,

15 to 25 drops in inhaler or on handkerchief and inhaled several times daily.

In constant recurring hemorrhage, where no tendency to blood clotting, inject 15 to 25 c.c. of horse serum for two or three consecutive days. Artificial pneumothorax will give quicker and probably better results.

For that most distressing cough and pain of laryngeal tuberculosis E. D. Davis recommends the deep injection around nerves of that region of eucaïne, 2 grains in 80 per cent alcohol. Be careful not to puncture blood vessels in this region.

Baldwin of Saranac Lake says of tuberculin: "First, it may work much good in some patients in lessening the sensitiveness to itself. Second, it may act as a stimulant to healing, or third, it may aggravate the disease.

The presence of albumin in the sputum is a valuable sign in the diagnosis of pulmonary tuberculosis.

F. J. F.

CLINICAL CONGRESS FOR THE STUDY OF LOCAL SPINAL AND SCOPOLAMIN-MORPHINE ANAESTHESIA.

January 26, 27, 28, 1915.

Evening meetings to be held with the Chicago Medical Society, at 8:15, Marshall Field & Co. Annex Building, 25 East Washington St., sixth floor, telephone Central 8455.

Clinics to be held at Cook County Hospital, Polyclinic Hospital, Post Graduate Hospital, Presbyterian Hospital, Illinois Medical School,

Alexian Brothers Hospital, and Mary Thompson Hospital.

Program.

January 26—8:15 P. M.

- 1—Spinal Anaesthesia in General Surgery. W. Wayne Babcock, Philadelphia.
- 2—Spinal Anaesthesia as Used in South America. Professor De Bayle, University of Nicaragua.
- 3—Spinal Anaesthesia in Gynecology. H. J. Boldt, New York City.
- 4—Sacral Anaesthesia (extradural injection of novocain as used in Freiburg Frauen Clinic). Kurt E. Schloessink, Freiburg, Germany.

Discussion: Arthur Dean Bevan, John B. Murphy, B. C. Corbus, Lester E. Frankenthal.

Program.

January 27—8:15 P. M.

- 1—Caesarean Section Under Local Anaesthesia. J. Clarence Webster.
- 2—Scopolamin-Morphine in Abnormal Obstetrics. John Osborn Polak, Brooklyn, N. Y.
- 3—Scopolamin-Narcophine Anaesthesia as Used in the Freiburg Frauen Clinic. Kurt E. Schloessink, Freiburg, Germany.
- 4—A Psychological Study of "Twilight Sleep" by Means of the Giessen Methods. Elizabeth Ross Shaw.

Discussion: J. B. DeLee, Henry F. Lewis, Chas. S. Bacon, Chas. E. Paddock.

Program.

January 28—8:15 P. M.

- 1—Scopolamin-Morphine Anaesthesia. M. G. Seelig, St. Louis, Mo.
- 2—Scopolamin-Morphine Anaesthesia in Abdominal Surgery. Emil Ries.
- 3—Local Anaesthesia in Thyroid Surgery. A. E. Hertzler, Kansas City, Mo.
- 4—Local Anaesthesia in General Surgery. M. L. Harris.

Discussion: Clifford U. Collins, Peoria, Illinois; Paul F. Morf.

Demonstrations of "Twilight Sleep" will be given by John Osborn Polak, Kurt E. Schloessink, and Bertha Van Hooser. Time and place to be learned at the office of the Chicago Medical Society.

Bertha Van Hoosen, Chairman.

STATE BOARD EXAMINATIONS

Dr. C. St. Clair Drake, secretary of the Illinois State Board of Health, reports the following results of examination held by the Illinois State Board of Health, in Chicago, October 6-8, 1914. The total number of candidates examined was 118, of whom 103 passed, 9 failed and 6 did not complete the examination.

College—	PASSED.		Year	Total No.
	Grad.	Passed.		
American, St. Louis.....	(1912, 1) (1914, 1)	2		
Barnes	(1899)	1		
Bennett (1912, 1) (1913, 3) (1913, 2) (1914, 6) (1914, 11)		23		
Chicago Coll. M. & S.....	(1909, 1) (1910, 1)			
(1911, 2) (1912, 1) (1913, 3) (1914, 16) (1914, 12)		36		
Hahnemann, Chicago.....	(1912, 1) (1913, 1) (1914, 1)	3		
Hering	(1913)	1		
Jenner	(1914)	3		

Louisville & Nashville.....	(1908)	1
Meharry	(1914)	3
National University of Greece.....	(1909)	1
Northwestern	(1914, 4) (1914, 2)	6
Reliance	(1911)	1
Rush	(1912, 1) (1913, 1) (1914, 5)	7
University of Illinois.....	(1913, 1) (1914, 4) (1914, 6)	11
University of Bellevue, N. Y.....	(1914)	1
University of Pennsylvania.....	(1914)	1
Western University, London.....	(1909)	1
Woman's Penn.....	(1906)	1

FAILED.	
Bennett	(1914)
Chicago Coll. M. & S.....	(1914)
College of Medicine & Surgery, Chicago.....	(1909)
Detroit Medical Coll.....	(1910)
Illinois Medical College.....	(1910)
Jenner	(1914)
P. & S., Chicago.....	(1901)
Royal Univ. of Palermo.....	(1911)
Univ. of Zurich.....	(1911)

STILL THE WINNER TO DATE



A Happy New Year.

—Courtesy of Mr. Bradley and The Daily News.

Auto Sparks and Kicks

DENATURED ALCOHOL FOR PRIMING MOTORS.

Engineer Says It Is Better Than Gasoline for Priming.

Denatured alcohol is the best primer for motors, according to Ralph Nesmith, formerly chief engineer of the La France Fire Engine company, regarded as one of the leading authorities on building and maintaining motors.

"As motorists know," declares Nesmith, "the gradual lowering of the quality of commercial gasoline available for automobiles has made it difficult to start the motor, especially in cold weather. Under existing conditions, I find that denatured alcohol is preferable to gasoline for priming purposes, because a few drops injected through the priming cock will insure a quicker start. I also find the engine will run longer on alcohol and thus give the carburetor longer in which to begin its work.

"Experiments with ether for this purpose show that while the engine works quickly enough, it does not give the carburetor a chance and a second priming usually is necessary. As denatured alcohol is cheaper than ether and always is uniform, it is certain to become a popular primer.

PROPER WAY TO TURN ON NARROW STREETS.

Even in such matters as turning a long wheel-base car on a narrow street there is a right way and a wrong way to go about it, though not many persons know the right way, or at least the way that takes the shortest time and causes the least wear and tear on the car. The general practice of first going ahead in a curve until the front wheels bring up against the curb requires that the low speed be engaged, then the reverse speed, to back up in a reverse curve, and then the low speed for going ahead again. But if the car is first backed in a curve to the far curb, it will be necessary to engage the low gear only once.

TO AVOID BREAKING AN ARM.

Many a broken arm and worse would have happened had not the following advice of George

A. Hows, the founder of the famous Panhard oil business, been followed: When cranking, place the thumb against the index finger and take the handle between the four fingers and the palm of the hand. The hand thus opens readily should a back-kick occur. Always crank up; never down.—*Motor Print.*

SPARK PLUGS.

When a spark plug fouls and missing of explosions is the result, the current skips across through the grease and carbon that covers the porcelain. The points seldom require any attention, but the porcelain should be removed and cleaned with gasoline on a soft cloth. The "petticoat" spark plug has the longest distance for this escaping current to travel, and will stand more dirt and grease without missing.

WHY WE SAY "SHE."

We refer to an automobile by the female pronoun because she is very much like a woman in many respects. When she is slicked up, and is attractive, we all admire her; when she is silent we are pleased with true astonishment, for few are silent; when she acts properly she is charming, yet we often drive her into improper actions by lack of care; when she gets old and has lost her style we try to discard her and hunt up a more pleasing one—an affinity.

INNER TUBE WRINKLES.

When you immerse an inner tube in water to discover a leak, make a mark around the leaking place with an indelible pencil.

A bag made of soft flannel is best to keep inner tubes in. Tie the mouth of the bag around the projecting stem.

It is false economy to buy cheap inner tubes. A poor inner tube will quickly put an expensive easing in the scrap pile.

In repairing a fair-sized hole it is better to place a patch on both sides and then vulcanize.

If you have no gasoline or sand paper to clean the surface for a patch, use rubber cement on a small piece of clean cloth.

THIS PAGE RESERVED
FOR
PERMANENT STATE MEETING
ANNOUNCEMENTS

THE
COMMITTEE ON ARRANGEMENTS
FOR THE NEXT MEETING OF THE
ILLINOIS STATE MEDICAL SOCIETY
TO BE HELD AT
SPRINGFIELD
ON
MAY 18, 19 and 20, 1915
EARNESTLY REQUESTS YOU TO DECIDE
RIGHT AWAY
TO ATTEND
The Largest, Best, Busiest and Most Enthusiastic
Session in the History of the Society.

Special "Doings" for the Ladies on Wednesday,
May 19—ALL DAY.

*Watch This Space Next Month for Announce-
ments.*

Society Proceedings

ADAMS COUNTY.

The Adams County Medical Society held its annual meeting on Monday, December 14, at Hotel Quincy. About thirty-seven doctors were in attendance.

The morning session was devoted to the reading of business correspondence, listening to the reports of the secretary and treasurer for the past year and the election of officers.

The following physicians will constitute the official roster for the year 1915: President, Dr. C. R. Bates, Camp Point; first vice-president, Dr. G. E. Whitlock, Columbus; second vice-president, Dr. D. G. Stine, Quincy; secretary, Dr. Elizabeth B. Ball, Quincy; treasurer, Dr. C. E. Ericson, Quincy; censors, Drs. J. H. Blomer, W. F. Pearce and D. M. Knapp; defense committee, Dr. John A. Koch, Quincy; delegates to state meeting in 1915-1916, Dr. H. P. Beirne, Quincy; alternate delegate, Dr. John A. Koch, Quincy; library committee and trustees, one new member elected, Dr. C. A. Wells, Quincy.

Luncheon was enjoyed in the dining room of the hotel. In the afternoon Dr. John A. Koch presented an interesting and instructive paper on "Spinal Anesthesia." The paper contained a number of very good points which were brought out during the discussion.

There being no further business the meeting adjourned.

ELIZABETH B. BALL, Secretary.

ALEXANDER COUNTY.

The annual meeting of the Alexander County Medical Society was held in the Chamber of Commerce rooms in Cairo, December 17. Fifteen out of the twenty-three members were present. The secretary-treasurer's annual report showed the following facts about the condition of the society and the medical profession in this county: Number of physicians in the county, 32; number eligible to membership, 31; number belonging, 23; number belonging last year, 24; lost during the year, 2; gained during the year, 1; net loss, 1; number of meetings held in year, 9; average attendance, 9 $\frac{2}{3}$; Fellows of A. M. A. in the county, 8. Total receipts for year, \$95.00; expenditures, \$80.70; cash on hand, \$14.30.

The following officers were elected for 1915: President, Dr. G. H. McNemer, Cairo; vice-president, Dr. W. F. Grinstead, Cairo; secretary-treasurer, Dr. Flint Bondurant, Cairo; member board of censors, Dr. O. M. Dickerson, Miller City; delegate to state society, Dr. J. W. Dunn, Cairo; alternate, the secretary.

After a discussion of various matters of interest to the society and the profession in general the members repaired to the Alexander Club grill room where a banquet was served and the following program carried out:

TOASTS.

(Dr. Dodds, Toastmaster.)

1. "The Medicine Man".....Dr. Dodds
Dr. Davis, Story (pathetic or otherwise).
2. "Nature's Plan".....Dr. McNemer
Dr. McManus, Story (or Song).
3. "Why a Medical Organization".....Dr. Gassaway
Dr. Bondurant, Story (serious or otherwise).
4. "Why I Am Always Present".....Dr. Grinstead
Dr. Cary, Good-night Story.

It was the consensus of opinion that the evening was the most pleasant and profitable the members ever spent together.

JAS. W. DUNN, Secretary.

CLARK COUNTY.

Society met in Court House, Marshall, Ill., at 2 p. m., December 10, 1914.

Members present: McCullough, Johnson, S. C. Bradley, R. H. Bradley, L. J. Weir, Prewett, Marlow, Haslitt, Pearce, Mitchell, Burnside, S. W. Weir.

Visitor: Dr. G. B. Thomas of Hazel Dell.

Some communications were read and considered.

Marlow reported a case of neuritis of side of face and arm on same side. Lessened strength in that arm, pain and tenderness; afflicted 1 or 2 years. Medicine does not seem to relieve. Many suggestions were made in the discussion.

Johnson reported a case of knee effusion for two years, which was tapped and five ounces of serous fluid obtained. It refilled in a short time. Quite a discussion and exchange of experiences, observations and opinions followed.

Dr. S. C. Bradley presented the subject of the meeting, "Malignant Tumors," in a well prepared paper, considering symptoms, palor, sallow skin, early attributed to digestive troubles which are usually present. Advised removal of all lumps in the breasts of women and other suspicious tumors. Better to excise some benign tumors than wait too long. Described cases illustrating his points, especially the delay patients made in the past of fooling away valuable time with pastes till too late for successful operations and cases that are not diagnosed till the disease has extended too far to be entirely removed.

Dr. P. P. Haslitt led the discussion and several members participated, continuing the interesting and valuable talks until a late hour.

L. J. WEIR, Secretary.

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, December 2.

Talk on Foot and Mouth Disease, Dr. Joseph Hughes, President Chicago Veterinary College.

Live Stock Sanitary Control; Texas Fever, Bovine Tuberculosis, Hog Cholera. Dr. O. E. Dyson, State Veterinarian.

The Spread of Disease Through Garbage. Prof. V. A. Moore, Cornell University, Ithaca, N. Y.

Subject not announced. Dr. S. E. Bennett, United States Inspector.

Regular Meeting, December 9.

1. An Obstetrical Outfit and Its Use in Twilight Sleep Delivery at the Mary Thompson Hospital. Bertha Van Hoosen.

2. Goitre. A. A. O'Neill. Discussion, Wm. O. Krohn.

3. Resection of the Posterior Roots of the Spinal Cord for the Cure of Little's Disease. M. E. Bland, Cleveland, Ohio. Discussion. Carl Beck.

Regular Meeting, December 16.

1. Some Types of Malignant Endocarditis. Jos. M. Patton. Discussion. J. Weatherston.

2. Psychotherapy in General Practice. Wm. S. Sadler. Discussion. Wm. G. Stearns.

3. The Etiology, Pathology and Treatment of Sexual Impotency. Irvin S. Koll.

ENGLEWOOD BRANCH.

The December meeting of the Englewood branch was held on Tuesday evening, December 1, at the Englewood Hospital. President Dr. Joseph Sherlaw presided and the following program was presented:

"Demonstration of Specimens Illustrating Various Localizations of Streptococci Following Intravenous Injection," by Edward C. Rosenow.

For over two hours those present enjoyed an extremely rare treat, in fact it was as listening to a beautiful fairy tale and one can but think of Rosenow as "The Wizard of Experimental Medicine," especially so in relation to his work on streptococci. These organisms in his hands behaved almost as trained animals, doing first one thing and then another.

He spoke of various localizations, the factors determining same and gave many experimental facts to show that they do localize. For instance, by injecting mixtures of hemolytic streptococci and streptococci viridans an arthritis and endocarditis was produced in the same animal, the arthritis was proven to be due to the hemolytic streptococci and the endocarditis to the streptococci viridans. It was during his work on the transmutation of pneumococci and streptococci that Rosenow found that oxygen pressure played an important role in the virulence of different strains of streptococci organisms, in fact his experiments showed that the kind of infection and localization depended almost entirely upon the degree of virulence. He devised a technique in which he obtained, not only aerobic and anaerobic conditions, but all degrees of oxygen pressure between these two points. This was done by means of a tall column of melted and cooled ascites-dextrose-agar, the one end being aerobic and the other anaerobic, the middle point giving the best results.

He showed that streptococci of a certain degree of virulence would produce appendicitis and when re-injected into animals would again produce the same lesion. In summing up his work in this connection

he stated that germs of the first degree of virulence would produce appendicitis, of the second degree ulcer of the stomach was the rule, of the third degree cholecystitis resulted and that if the virulence was still raised a pancreatitis resulted. He showed many specimens demonstrating the above results and stated that the germs did not pass from one form to another, but that it was rather the degree of virulence that determined the character of the injection and the lesion produced.

He gave the history of a girl with acute appendicitis who was operated on at 48 hours. Twenty-four hours after operation Rosenow examined the tonsils and pressed out some pus. This was cultured and streptococci found. Injections were made into animals with the result that all developed appendicitis. Four days later pus from the tonsil was again cultured and injected. Not one developed appendicitis, but some arthritis and some endocarditis. This was explained by the germs gaining a different degree of virulence, the tonsils being a good place for this on account of variations in degrees of oxygen pressure.

In speaking of the high degree of virulence of the germ producing localizations in the gall bladder he gave the history of a case. He cultured the bile and the tissues and from the center of the stone a pure culture of streptococci was isolated. This was injected into a dog and produced a cholecystitis with enormous gall bladder.

He briefly recited the work he did at Mayo's clinic in culturing the bile and tissues in gall bladder cases. In this connection he showed the absolute uselessness and error in culturing the contents of the gall bladder or a pus appendix. Any old germ may be found at this stage and the primary and all important organism is overlooked. In culturing the wall of the gall bladder and the center of the stone streptococci were most commonly found, while in the bile the colon, typhoid and other germs were present. These Rosenow believes, and gives good reasons for his belief, are secondary. In cases of acute appendicitis operated on very early pure cultures of streptococci were found, the rule being that the farther from the lumen—the mucosa—and the nearer the peritoneal coat the culture is taken the more likely are streptococci found; the important point being the demonstrated fact that the true bacteriology lies not in the findings of the contents of an appendix or gall bladder, the primary infection having passed beyond and should be sought in cultures taken from the tissues.

He spoke of the formation of gall stones, the foreign body consisting of bacteria and leucocytes; all the rest being simple—it all being a question of infection.

After closing his brilliant discourse Dr. Rosenow answered numerous questions put to him by some of the members present. In all some forty or fifty specimens were shown.

A rising vote of thanks was extended to Dr. Rosenow. The attendance was 94.

ARTHUR G. BOSLER, Secretary.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY AND CHICAGO SURGICAL SOCIETY.

Joint Meeting Held May 1, 1914.

The President of the Chicago Laryngological and Otological Society, Dr. Otto J. Stein, in the chair.

EXHIBITION OF SPECIMEN BY DR. SHAM-BAUGH.

This specimen was one in which the ventricle of the larynx had been split open and the appendix could be seen running up half way to the top of the thyroid cartilage. The appendix of the ventricle varies, not only in different individuals, but on the two sides. It is always present. It may exist as a slight pitting or depression; at other times as a prolongation, that extends up not only as high as the top of the thyroid, fully an inch, but also up to the hyoid and base of the tongue, in some instances. The function seems to be to assist in supplying lubricant to the vocal cords. Under the term laryngocele ventricularis, Virchow described a condition which he found post-mortem of elongation of the ventricle, considered by him to be a pathological condition, running up as high as the upper border of the thyroid cartilage, or, in rare cases, as far as the hyoid bone. Anatomists today believe this condition represents simply an anatomical variation of a normal appendix of the ventricle.

The term laryngocele ventricularis seems a suitable one for the condition the speaker was discussing, where there exists a cystic dilatation of the appendix of the ventricle. This cystic dilatation is a very unusual condition. Hippel, in 1910, made a complete review of the subject, and collected, in all, twenty cases throughout the entire literature which he was able to verify as cystic dilatation of the ventricle of the larynx. Eight of these were discovered post-mortem, so that there were only twelve cases that had been observed during life and recognized.

These cystic dilatations of the appendix of the ventricle form in three different ways; sometimes there is simply a dilatation within the larynx, with laryngeal symptoms; at other times the cystic dilatation does not take place in the larynx at all, but the point of the appendix is pushed through the thyrohyoid membrane, forming an external dilatation, so that the only symptom is from the external swelling in the neck. In other cases, like the one he wished to report, there is a double condition, cystic dilatation external in the neck, and also dilatation in the larynx.

The causes leading to this condition are recognized as two: One, the existence of one of these elongated appendices. The elongated appendix of the ventricle is supposed to be necessary before the patient may develop a cystic enlargement. As the active cause, spells of coughing are thought to play a rôle. In the case reported by the speaker a violent fit of coughing apparently started the process. Blowing on a wind instrument has been responsible for a number of cases. In one case it seemed that the cystic enlarge-

ment of the ventricle was brought about by politzerization of the middle ear.

Regarding the symptoms produced, they vary as to whether there is external or internal enlargement or a combination of the two. When external, it is very characteristic, located directly above the thyroid cartilage. It may be quite an enlargement. The enlargement in the neck is a very characteristic condition. It is hardly to be mistaken. It can be reduced by pressure, but this only lasts for a short time and then it enlarges again. The first symptom is usually pain around the region involved. When there is enlargement in the larynx, one gets just the symptoms you would expect—loss of voice because one vocal cord is covered over by this enlargement, which stops its action, just as any growth in this region would do. If the swelling in the larynx gets large enough, it may produce symptoms of difficult respiration. The patient whose case was here reported had such symptoms at one time.

One of the most annoying features of this condition is the infection that sooner or later often gets into this cystic enlargement. During some acute infection in the throat this pouch becomes infected, and then it remains chronically infected, secreting large quantities of pus. In the case reported the constant secretion of foul pus into the throat, not only during the daytime, but also during the night, has been her chief annoyance. During childhood this patient had experienced a good many attacks of acute laryngitis, with symptoms of hoarseness and coughing, which would be associated with sore throat, lasting several weeks, and then disappearing. She had a great many such attacks, but they were of short duration. Then she had been practically free from symptoms for twenty years, that is, until four years ago this spring, when she was traveling abroad and had one such attack, apparently the same as those of early life. During a violent spell of coughing she felt a filling up of the neck, developed hoarseness of a marked degree, some pain in the side of the neck. This cystic enlargement never entirely disappeared, although at times it would collapse, and for a short time the voice would be restored. The loss of the voice was, of course, a hardship, but the pus was worse. It was not only annoying in the daytime, but it was still more troublesome at night, when she often was required to sit up most of the night in bed. The pus would fall into the larynx and she had to cough it up constantly.

The year after this cystic enlargement developed she was in Chicago and saw a number of men, and several attempts were made to relieve it. One man operated twice on the larynx itself, attempting to give her relief. Of course, this relief was only temporary. On opening the cyst, it would collapse like a punctured balloon, but it would soon fill up again. She consulted a number of general surgeons, and one external operation was made, leaving a scar in the neck. In looking over the case, it was quite apparent that any effort to operate in the larynx itself would probably only give a very temporary relief, be-

cause there was a big pouch in the neck which would continue to pour off pus into the throat just the same.

In talking the case over with Dr. Dean Lewis, it was thought best to try, first, to get rid of this pouch in the neck, which was done, and the relief following that operation was very marked. The amount of pus secreted was very much diminished, but not entirely eliminated. She was able before this operation, by pressing on the external enlargement, to express a quarter of a cupful of pus at one time. They did not attempt to split the larynx and remove the cyst in the larynx itself, feeling that the removal of this large pouch outside might give relief enough without running the risk of producing an injury to the voice. (Dr. Shambaugh exhibited a drawing which was made of the larynx before it was operated on.) Later the speaker attempted to make a resection of the cyst in the larynx. It was quite clear that any instrument introduced from above to cut it open would cause a collapse, and he wanted if possible to split the whole cyst from top to bottom. To do this he had a special instrument made (which was exhibited), which he could introduce below the false cord into the ventricle, and then slit it up to the top. The operation was undertaken under cocaine. After the splitting of the cyst the voice returned. Then with a Krause biting forceps he bit off piece after piece in front and behind, until he had an opening about the width of his forefinger. The operation lasted fully an hour, because every time a piece was cut out it began to bleed and he had to wait until the bleeding stopped. The result of that clearing out of the larynx had not been as satisfactory as he had hoped. The size of the cyst now is perhaps half or one-third what it was before the first operation. The remaining pouch has healed over so that there is just a little fistulous opening, which distends somewhat with pus. But the scar tissue has reduced the size a great deal. There is very little trouble now with the pus running into the throat at night, although it has been more during the last few days. A couple of weeks ago she had an acute sore throat, accompanied by a flare-up in the throat symptoms, with chill and some fever.

DISCUSSION.

DR. DEAN D. LEWIS said that Larrey apparently was one of the first to report a laryngeal diverticulum. During the Egyptian campaign he found that several of the people who shouted the verses of the Koran from the minarets had peculiar elastic tumors in the neck at the side of the larynx. It is doubtful whether all these cases were diverticula. Some undoubtedly were vascular strumas. There was, however, a marked interference with the voice, for in many cases the people became so hoarse that they could no longer shout the verses and they were then assigned the duty of tending the fish ponds in the temples.

After the army returned to France, Larrey noted two cases of laryngeal diverticula in the under officers of the guard.

The extralaryngeal diverticulum appears at the lower and posterior part of the submaxillary triangle. It passes through the thyrohyoid membrane over the upper border of the thyroid cartilage to reach this position. Some cases have been reported where the pouch appeared below, passing through the circothyroid membrane, but it is doubtful whether these are instances of true diverticula.

The diagnosis is not difficult, but the operative treatment offers many problems. The true extralaryngeal diverticulum can be removed easily. The intralaryngeal methods which have been employed in treating the intralaryngeal sac have not been satisfactory. Laryngo-fissure gives good exposure of an intralaryngeal sac, but the speaker believes that the best procedure is to split the thyroid cartilage just in front of the superior horn, and to expose the outer aspect of the aryteno-epiglottidean fold and the sinus. In this way the mucous lining of the diverticulum and the remainder of its wall can be removed without opening, at least to any extent, the cavity of the larynx.

DR. OTTO T. FREER said that the patient exhibited by Dr. Shambaugh and operated on by Dr. Lewis was formerly his, and he was the first one to make a diagnosis of her ailment when, what later became a pus sac, was still an air sac. He also had to encounter haffling difficulties in the treatment of this rarest of affections, difficulties which finally pointed out to him an operative method which promised success, when the patient decided to leave his care, so that he could not do what he wanted to.

At a meeting of laryngologists last winter, at which Dr. Joseph Beck, Dr. Chas. M. Robertson, Dr. Stanton Friedberg and Dr. Norval Pierce were present, Dr. Shambaugh had questioned Dr. Freer concerning his experiences with the patient, who had then come into Dr. Shambaugh's hands. Dr. Shambaugh told him that he was considering a partial laryngectomy for the relief of the condition. Dr. Freer then fully described to Dr. Shambaugh the anatomical relations of the air sac and told him that, as the patient had a perfect larynx and her difficult breathing and loss of voice were due to the mere resting of a mucous membrane sac as a damper upon one cord, even laryngotomy, not to speak of the formidable operation of removing a part of the laryngeal skeleton by hemi-laryngotomy, would, in his opinion, be the wrong procedure, especially as it would not give the desired access to the extensive diverticulum, and would spoil the patient's potentially fine voice. Dr. Freer then suggested, instead, the line of operation which he was pleased to see had been followed by Dr. Shambaugh and Dr. Lewis.

The following is the remarkable history of the patient while under his care: The patient was referred to the speaker by Dr. C. Gurnee Fellows for diagnosis, February 7, 1911. Her age then was sixty-six. She stated that she had been subject to repeated attacks of peritonsillar abscess, the last one in 1893. Her present trouble began in November, 1910, with a feeling of obstruction in the throat, and hoarseness, which did not change.

Examination: On the left side a smooth, deep-seated, elastic swelling distended the pharyngo-epiglottic and ary-epiglottic folds, extending to the thyroid cartilage externally, and so effacing the fossa piriformis. It also filled the left vallecula to the base of the tongue. It covered the left vocal cord, whose border could be seen white and normal, when the swelling was pushed away from it with the laryngeal probe. The portion of the swelling resting upon the vocal cord acted as a damper and made the voice very hoarse. Regarding the tumor as a cyst, Dr. Freer punctured it diagnostically in its posterior part with the laryngeal knife, when, to his surprise, the tumor instantly vanished and he looked into a normal larynx, the patient at once speaking in a clear, natural voice. It was evident that the sac had been filled with air and not fluid. A probe descended through the cut to a depth of two and one-quarter inches, passing downward and outward between the thyroid and cricoid cartilages. In a few days the opening had closed and the tumor had refilled with air. The speaker recognized that he had to do with a diverticulum of the ventricle of the larynx of great extent, forming with the integument a triple layer of mucosa over the left arytenoid cartilage, the left ary-epiglottic fold, pharyngo-epiglottic fold and fossa piriformis, creating in effect, when empty, an enormous mucous bursa over these parts. There was no evidence at this time of an extension of the sac outside of the thyro-hyoid membrane.

On March 13, 1911, he reopened the sac in front of the left pharyngo-epiglottic fold in the vallecula, his intention

being to create a permanent opening, however small, to permit the escape of air from the sac, for its accumulation was evidently due to a valve action in the outlet of the ventricle of the larynx, which permitted air to enter the sac, but let none come out. As before, the sac collapsed and from this opening he could pass a probe from the vallecula down through the ventricle and out into the trachea below, and could see into an extensive mucous membrane pocket. In spite of enlarging the opening with the Heryng punch and the galvanocautery it closed again in a few days, and the sac refilled, as before. At this time he saw the patient with Dr. J. Gordon Wilson, and they agreed that laryngotomy was unwarranted, as it would injure the potentially fine voice, and could not lead to extirpation of the extensive sac. The indication was to prevent the confinement of air in the sac, and they decided that the best way to accomplish this was to split the sac from top to bottom, cutting through the ventricular band, the ary-epiglottic and pharyngo-epiglottic folds. This would divide branches or the trunk of the superior laryngeal artery which crosses the fossa piriformis to the larynx and epiglottis, but a previous tracheotomy would permit tamponade. However, the patient wished no further operating at this time, and the speaker did not see her again until May 6, 1912. Conditions had remained the same until October 13, 1911, when she had another peritonsillar abscess in the left tonsil, which nearly suffocated her until it burst. Dr. Charles C. O'Byrne attended her, performing tracheotomy, and opening a swelling in the neck which obviously connected with the internal sac, and which was full of pus. The suffocation symptoms demanded the tracheotomy. Before he operated, however, the pus had reopened the old opening made in the vallecula and kept escaping at the base of the tongue. When Dr. Freer saw her in May, 1912, after this occurrence, he had for the first time evidence of an extension of the sac into the neck, as the patient could force pus out of the opening in the vallecula by pressing on a swelling over the left half of the hyoid bone. Air entered and left the opening with a squeak, which greatly annoyed the patient. At this time he advised her to let him extirpate the sac in the neck and do the internal operation which Dr. Wilson and he had decided upon as the best thing to do; but she again left his care, and he had not seen her since.

It is his opinion that the cause of the suppuration of the sac in October, 1911, was bursting into it of the peritonsillar abscess, and he thought that but for this the diverticulum would still have remained an air sac. But for the suppuration its extension into the neck would have remained unnoticed, and Dr. Shambaugh is mistaken in saying that the diverticulum in its air sac stage formed a swelling in the neck—this part of the sac was not filled with air.

In conclusion, he wished to refer to the remarkable article of Dr. J. Gordon Wilson, presented in the Chicago Oto-Laryngological Society some years ago, in which he showed the connection between laryngeal diverticula in man, and the air sacs of the roaring monkeys, specimens of the monkey's larynxes with the distended ventricular sacs being shown.

DR. SHAMBAUGH, in closing discussion, stated that he regrets that he is not able to acknowledge having received any suggestions from Dr. Freer regarding the treatment which was of any assistance in the handling of this case. It is hardly necessary to point out that Dr. Freer has confused the term laryngectomy with laryngo-fissure. Neither Dr. Lewis nor Dr. Shambaugh at any time had contemplated a laryngectomy but had considered doing a laryngo-fissure. The failure to get a more satisfactory result in the work done was because during the removal of the sac they had stopped short of doing a laryngo-fissure. This part of the work was planned and carried out by Dr. Lewis, who did not even know that the case had seen Dr. Freer two years ago, or that Dr. Freer had offered suggestions regarding treatment.

DR. FREER said that Dr. Beck heard him make the suggestions.

DR. LEWIS, in closing, said that he thought the only thing that ever cured cases of laryngeal diverticula was laryngo-fissure. He exposed the sac by the external operation, and thought that by splitting the cartilage and everting it the

larynx at any time, and after a tracheotomy tube was fissure would fill up again, but it did not. The whole operation could be done by splitting the cartilage laterally, because the thyrohyoid membrane is exposed. The external sac is exposed, and the work can be done from the outside.

EXHIBITION OF CASES OF COMPLETE LARYNGEAL STENOSIS OPERATED ON BY BY LARYNGO-FISSURE AND LARYNGOSTOMY.

Dr. Joseph C. Beck exhibited a baby one and one-half years old, with the history that the baby fell over a bureau drawer and struck its larynx. The child was then taken to a doctor, because of difficulty in breathing, who said that the child must have swallowed or inhaled some foreign body. The patient was then sent to a hospital, where an x-ray picture was taken, which it was thought showed a foreign body, and operation was advised and performed, but no foreign body recovered, and so search for it was abandoned. Following this a tracheotomy was necessary and the tube had to be retained. If the tracheotomy tube was removed at any time it led to a choking sensation. Then the child was sent to a general surgeon for examination and he found nothing to explain the condition and inserted a larger tracheotomy tube. When the speaker first examined the case he found that the ligament that supported the epiglottis must have been separated, because the epiglottis seemed to be lying over on one side. On looking between the cords he found a complete blocking below that point. He decided to operate by laryngo-fissure. Chloroform was used as an anesthetic, as ether had been previously used very unsatisfactorily. He took the anesthetic very badly—in fact, collapsed, and was practically dead on the table, and artificial respiration was resorted to without any response. The operator placing his mouth to the tracheal fistula and inflating caused breathing to return normally. Then a laryngo-fissure was performed, resecting the scar tissue within the larynx and trachea, and a laryngostomy tube inserted—the up-and-down tube of Jackson, which has served the speaker very well in all his cases. This laryngostomy tube was left in for ten days, being covered in addition with a rubber tube. The tube has now been out about ten days and the child at the present time is able to breathe through the mouth without any difficulty. The external opening is practically closed. There are a number of scars on the neck, and Dr. Beck is going to do a subsequent plastic operation on the child. The child has no voice and has not uttered a sound. In most of these laryngostomy cases it is necessary to do a plastic operation subsequently to close the external opening, but in this case it will not be necessary.

The second case was that of a man, first seen three years previously. He came to the hospital with symptoms of marked suffocation, requiring immediate tracheotomy. At first it was thought to be due to carcinoma, but a removal of a piece of tissue showed on examination that it was of a different

nature, proving to be a marked case of syphilis. It was impossible to introduce anything through the worn for some time the larynx was split. After he was treated sufficiently for the syphilis so that a negative Wassermann test was obtained, the larynx, however, remained absolutely obstructed, and the speaker did a laryngostomy. The laryngo-fissure had to be done with bone forceps because the thyroid cartilage was ossified (shown subsequently by microscope), introducing a very large up-and-down tube, which was left in place for two months. It is necessary in these cases to retain the tube for a long time, packing on top of it, in order that the thyroid cartilage remains open. Later the wound is closed by laryngoplastic. The method used by the speaker for closing the larynx after the cartilage remained open was illustrated by the speaker on the blackboard. The patient breathes perfectly normally and has a hoarse voice, but a fair one.

The third case was one of a man who had a chronic suppurative ethmoiditis that caused the secondary perichondritis of the larynx, making the breathing impossible. It was impossible to get anything through except a very small probe. Immediate tracheotomy was necessary. Incisions within the larynx and dilatation were tried unsuccessfully, so the speaker decided to do a laryngo-fissure and subsequently laryngostomy. At operation a very large stricture was found in the trachea, close to the substernal notch, a stricture that would not permit the passage of a small pencil. The whole interior of the larynx and trachea, for that matter, was filled out with a mass (of which the speaker showed specimens) of hypertrophic mucous membrane. The epithelium was enormously thickened, as was the epithelial tissue. He proceeded in a similar manner as in the other two cases, putting in an up-and-down tube, packing on top of it, and finally succeeded in keeping the larynx and trachea open. Then he wished to close this external opening with some solid structure, instead of skin, fearing retraction. He thought he would transplant a rib as a support, and therefore put a piece of rib into the subcutaneous tissue in the neck in close proximity to the opening, planning later to make a flap including the healed-in rib, but there is where Dr. Beck made his first mistake. He simply made a flap with the rib in it, turned it over and sewed it into the gap of the thyroid cartilage, thus closing the wound, but he failed to cover the granulating surface at once with skin from the other side. This piece of rib was lost, and that first operation was a failure. Then he decided to try the Kusch operation of transplanting a toe to the hand and then the neck. However, the patient was frightened one night during sleep, shifted his position within the cast, and severed toe and hand. This operation was also a failure. Dr. Beck intended to implant another solid body, namely, transplanting the clavicle, using the Manley method.

(Since presenting the case this last-mentioned operation was performed with success, and about two

months later the final closure of a little slit was made by employing the neighboring skin. The patient has only three fingers on one hand, and that is the reason why Dr. Beck did not employ the finger method of closing the larynx defect. The result is fair breathing and a fair voice. It will be necessary, however, to employ dilation to enlarge and keep up the breathing space. Dr. Beck has done this on the patient several times by the suspension method. He wished to call attention to the introduction of an intubation tube by suspension, which is very easy of performance.

DISCUSSION.

DR. OTTO T. FREER suggested the method of taking a fine dental circular saw with a dental hand-piece for the purpose of entering these hard cases of blocked-up larynx. He referred to a case of a larynx of this sort, in a case of carcinoma, where he did a laryngostomy. With this saw it is possible to make a fine line, without any other violence, such as the bone forceps naturally implies.

DR. J. HOLINGER said that in 1898 or 1900 he saw a patient with fracture of the larynx. The man was a plumber's helper, and in carrying a cast iron sink up a steep incline fell and struck with his neck on the edge of the sink. He lost his voice at once, and had difficulty in breathing. He came to the speaker the next day. The larynx appeared compressed from the front backward against the vertebral column. The lower part of the pharynx was normal. Apparently only the vocal cords were injured. They were immovable, red and swollen. The hyoid bone was not fractured. Dr. Holinger compressed the larynx from both sides, whereupon, with distinct crepitus, it took its normal form. When he looked at it again it was evident that the fragments had adapted themselves very nicely. Nothing else was done, and after about five weeks the voice came back and the patient made a complete recovery.

DR. HOLINGER asked Dr. Beck how he thought the fracture of the hyoid took place, which part was fractured, and what was the displacement of the pieces? Furthermore, he would like to know what the conditions are at the present time—are the fragments movable; are they united, and are they in anything like normal position?

DR. BECK, in closing, said that he did not see the baby at any time during the accident. It is now about eight months since the accident occurred. He found the hyoid bone intact, and everything all right. The trauma occurred below the cords; the cords themselves were all right. When he opened the larynx he found this mass of connective tissue subglottic. He did not think that the operator who looked for the foreign body went in the larynx at all. The cords are all right, and the child will have a good voice when it learns to speak.

RADICAL MASTOID.

Dr. Charles M. Robertson said that simple mastoiditis is caused by lack of drainage in the drum membrane. The general surgeon thinks he can do a mastoid as well as a specialist, and for that reason he spoke more particularly to the general surgeon. We say, then, that a mastoid is a sequel of a suppuration of the middle ear. Nearly all suppurations of the middle ear, where the discharge is profuse, are due to mastoiditis. This suppuration extends at least into the antrum cell of the mastoid and perhaps to the terminal cells.

In small children the openings on the surface of the bone allow a great deal of pus to escape into the subperiosteal space, and in these cases the mastoiditis

becomes a subperiosteal abscess. The old method of treating such cases was to cut down by the Knight incision, to allow pus to escape, and the operation was then supposed to be completed, and was known as the simple mastoid operation. That is no operation at all and has nothing to do with the mastoid. If these cases were allowed to go on the pus would probably break through.

The mastoid operation, as he has seen it performed by the general surgeon, consists in boring a hole into the mastoid and letting it go at that.

As we understand the simple mastoid operation, it is an elimination of all of the cells, whether they be deep or superficial. There are two types—one conserving the mastoid antrum and the other sacrificing it. In acute cases of mastoiditis some of us have an idea of saving the antrum cell of the mastoid, for the reason that the case heals better and we have, as a result, a middle ear that is added to by the antrum cell. In the old operation, however, the antrum cell is destroyed. That is supposed to give a better middle ear, but whether or not that is going to take the shape of a policy that will be proper or not, the speaker did not know.

There is another mastoid operation called the antro-meatal operation, in which the simple mastoid is done and after that is completed the posterior wall of the external auditory canal is cut away down to within three or four millimeters of the aditus tympanicus, and the meatal flap is pushed back through the wound and the cavity treated through the meatus instead of by the wound opening behind, which is done in the simple operation.

In the radical or complete operation the mastoid cells are completely exenterated. The bone is cut down over the attic. The attic, the aditus ad antrum and the external auditory canal and mastoid cells are all drawn into one cavity and the eustachian tube destroyed. Very many radical operations are made on cases that exhibit chronic discharge, and these chronic discharges should be differentiated before an operation is made. There are very many cases of chronic discharge of the middle ear in which the discharge does not come from the antrum or the mastoid cells. Many of these cases are now operated on by the radical method when they should not be operated on at all. There are cases of weeping eustachian tubes.

The speaker did not go into the indications of the different forms of operations, only that we say in the simple mastoid operation we drain the cavity of the mastoid cells for a lack of drainage, which lack of drainage produces temperature and other symptoms, and in severe cases indications of brain complications, such as sinus thrombosis or meningitis or extradural abscess. The meatal mastoid operation is used when we desire to produce a very fine cosmetic effect, but is contraindicated in all cases of tuberculosis and syphilis, and in cases where there are cholesteatomatous masses.

Preservation of hearing is the main feature in doing

the simple and antro-meatal operation, while after the radical mastoid operation the hearing is usually not so good as before. One reason for this is because the middle ear is obliterated, the ossicles are gone, the drum membrane is destroyed, the eustachian tube is closed, and the ear is covered with an epithelial lining rather than mucous membrane, and on account of this the oval window does not transmit the sound as it should, owing to the inelasticity of the skin covering the oval window.

The speaker next called attention to certain markings on the outside of the mastoid process of the temporal bone, which are not mentioned in books. One in particular, the lamina cribrosa, which he always observed gives a lot of assistance in marking out the line for operation by denoting the depth of cells over the sinus. (Dr. Robertson then illustrated the steps of the operation on the blackboard.)

The method he has adopted in operating on cases of mastoiditis which makes the work very simple is as follows: First, he determines the line of incision; the top of the opening in the cortex is on a level with the top of the meatus, and is three or four millimeters behind the meatal orifice. The original opening is a round hole, and he goes down immediately, so that at a depth of one and a half centimeters he is directly in from the spine of Henle. He then enters the antral cell. Then the external cortex is removed throughout. Next he chisels out the tip cells of the mastoid, paying no attention to the tissue between this and the antrum cell, until the mastoid tip is entirely clean. Thus there are two holes, one in the tip and one in the antrum, and the lateral sinus lies between, covered by cells. After exposing the lateral sinus wall, the posterior angular cells are taken out. After that the simple mastoid operation is completed, and then we come to the second step, which is cutting down the bridge. So many operators have so many different ways, all just as good as the one employed by the speaker, but he thinks his is the simplest one. (Indicating on blackboard.) After this he pays no more attention to the mastoid cavity. He makes a cut directly on a level with the floor of the cranial cavity, coming forward as far as the anterior border of the meatus. Care must be taken not to come too far forward for fear of opening the glenoid fossa. In cases where the external convolution of the brain dips down, the floor of the brain can be followed until reaching the level of the second convolution. On approaching the middle ear, care is taken not to get any of the posterior wall of the external auditory canal at all. He cuts clear through on the superior wall into the middle ear. After that he has no trouble about the facial nerve, because it does not come above this point. He has no trouble with the semi-circular canals, because he knows that they are at least below the upper third or three-fourths of the posterior wall. Then the wall is cut through and the whole ear is exposed. He trims down the posterior wall to the floor of the aditus ad antrum, which finishes that part of the

operation. He then destroys the eustachian tube as far down as the isthmus. The eustachian tube belongs to the middle ear as far as the isthmus, and from there down it belongs to the throat. He is very careful in cleaning out the eustachian tube, because he realizes that there is but a thin sheet of bone between that and the internal carotid artery.

Many people do not understand exactly where to find the canal for the tensor tympani muscle. It comes in from the middle ear and extends across just above the oval window. The facial nerve lies just exactly above the tensor tympani muscle. The tensor tympani muscle lies exactly in front of the oval window.

After the whole cavity is thrown into one, the cutaneous canal of the ear is cut, either reflecting one flap up or one down, or as he generally does the flap is lifted up into the roof of the cavity by cutting around the concho-meatal margin and splitting the membranous canal on the lowest line. This is practically the entire operation.

If one desires to expose the cerebrum, it may be done from above. If one wishes to expose the lateral sinus, all that is necessary is to chip off the wall here (indicating), remembering that as you come down on the lateral sinus the facial nerve lies just about a millimeter above it on the posterior wall of the meatus.

In curetting the middle ear we must remember that the facial nerve lies just a millimeter above the oval window, and therefore great care must be taken, because even tough handling of the facial nerve canal is apt to cause grave results.

DISCUSSION.

DR. NORVAL H. PIERCE said that in 1873 Schwartze published his first communication on the treatment of mastoid inflammation; previous to that time there was a strong feeling among otologists and general surgeons against the surgical opening of the mastoid for any purpose. But, based on von Trötsch's dissections and his own of mastoids, he concluded that it was a safe procedure, and in 1873 published his first communication. From 1875 to 1882 he published the results of a number of cases. He treated both chronic and acute suppurations in the same way. His procedure was simply to do what is now termed the simple mastoid, cutting down and elevating the periosteum and chiseling a hole in the mastoid antrum. In acute cases the results were very favorable, and in chronic cases they were very unfavorable. Most of the cases died of cerebral complications or septicemia. His method of keeping the wound open was varied, but he at last concluded that a lead nail was the best way. This lead nail was introduced into the antrum and kept in place by a steel band that went around the head. Of course, irrigations with various solutions were used, and the matter remained in that condition until Kuster published his paper in 1889, in the *Deutsche Medicinische Wochenschrift*. His method of treating the mastoid was a part of a general surgical proposition. He endeavored in this paper to establish a method for treating suppurating cavities with non-collapsible walls, such as the mastoid, antrum of Ilighmore and the pleural cavity. As regards the mastoid, he divided suppurations of the ear into two classes. First, those cases in which the antrum alone was involved, and, second, those in which the antrum and the cavum tympani were involved. In the first class he operated by the Schwartze method, except that he took away the entire mastoid covering, his proposition being that no overhanging wall should be allowed to remain in these operations, and that

the cavity should be obliterated. In the second class of cases in which the cavum tympani was involved he took away the external auditory canal down to the cavum. In certain other cases, where he could demonstrate that the contents of the cavum were diseased, and necrosis of the ossicles existed, he removed these and extended a drain from the post-auricular external opening through into the cavum, and out into the external auditory canal. Von Bergmann went a little further, and not only took away the external auditory canal—the posterior portion, but also the superior portion of the canal. Then Stacke came along with his flap, which really completed the development of operations on the mastoid, as they are found today. All other operations have been modifications of these original ideas.

Regarding the operation on the mastoid in acute suppurations and preservation of what has been called the antral box, the speaker thought this was very important, and he is more and more of that opinion as his experience enlarges, and believes that this fact should not be lost sight of. If we scrape away, or chisel away, or remove in any way the entire three walls of the antrum, we are going to get an overgrowth of mucous membrane from the cavum tympani, which will permanently form a large cavity, lined with very poorly nourished muco-periosteum, which will be the seat of inflammation every time that the cavum tympani is infected. This is the cause of the breaking-down of the mastoid wound which is seen very frequently in children, because this muco-periosteum has prevented the closure of the wound by the formation of osseous tissue. The speaker could say positively, from his experience, that there was nothing gained by scraping away these walls of the mastoid. Most men held the opinion that the suppuration and softening of the bone took place through the lateral wall of the antrum towards the surface. This is not so. The softening invariably takes place in the floor of the antrum because, as is known, all the mastoid cells either indirectly or directly communicate with the antrum, and it is the blocking of these little tubes which communicate with the cells that produces the backing up of the pus in the pneumatic spaces, and it is the softening of the bone about these tubes which first causes the antrum to break down at the bottom. Almost invariably you will find a fistula which runs downward from the floor of the antrum back of the hard bone of the external auditory canal to the terminal cells of the mastoid. Almost invariably this is the case. If one is very careful to go from below in dissections, he can find this fistula and get up into the antrum with a probe. When one gets into the antrum in this way, he takes away all the softened bone, wherever it may be, and the posterior cells, referred to by the essayist. Clean away the softened bone everywhere, if you like, but leave the box of the antrum alone, and when the removal of the pathological tissue is completed, put a drainage tube of the smallest size into the preformed antral perforation, and then pack the rest of the osseous wound with gauze. The soft parts are sewed up, except a portion at the lower angle, for the admission of the tube and the gauze. The question might be asked: Why introduce the tube? Is not the hole in the antrum sufficient? The tube, however, serves a very good purpose. After the third or fourth day, without unpacking the mastoid wound, it is possible to syringe out the cavum through this tube, and the fluid either goes through the Eustachian tube or comes out through both the Eustachian tube and the perforation in the tympanic membrane. In the majority of cases only one washing is required, and then the cavum tympani is found to be dry. The very moment it is found dry the tube is removed, and on the fifth or sixth day the dressing is removed, and the result is that in from one week to three there is complete cure. That is quite an advantage over the old method of operating, and the wound back of the ear is not so unsightly as the old wound, where it was packed open and the soft parts made to fill up the cavity within the mastoid.

The main idea in the speaker's mind was when to perform the radical mastoid, and when not? The general broad proposition is that a radical mastoid should be performed when there is evidence of destruction of the bone within the mastoid in chronic cases, and this is sometimes very difficult

to ascertain. Perhaps the best way is to centrifuge the pus that comes from the ear, and if well-recognized bone chips are found, then the indication is already present, because we know that the bone is being destroyed, and it is for the purpose of preventing complications such as softening or necrosis up into the brain, the middle or posterior fossa, or the sigmoid sinus, that operation is performed.

As regards the preservation of the middle ear, which has been advocated by Heath, in the majority of chronic suppurations there is necrosis of the ossicles, especially of the incus, and in a certain number of other cases necrosis of the tegmen tympani or of the promontory, so that Dr. Pierce does not believe, when a case has resisted all manner of ordinary treatment, and a radical operation has been decided on, that it is worth while to consider the preservation of the sound-conducting apparatus, because in these cases the adhesions, dislocations, etc., which form between the malleus, incus, stapes, and promontory, are so great that the hearing is very much reduced, in the majority of cases. The advantages of the radical mastoid are far beyond those of any other method of operating, and while it may not benefit or increase the audition, it will not diminish it.

DR. OTIS H. MACLAY asked Dr. Robertson, in closing, to mention the technic he employs somewhat more in detail, as it would be of interest to all the members present. The point is, is it advisable to do much with the burr or not? Some operators advocate doing practically all the work with a burr.

DR. M. L. HARRIS said that in a great many of these cases of mastoiditis, where the trouble was beyond the ear, he has had to go ahead and take out the attic and also operate on the sinus a number of times. When these cases get beyond the specialist they come to the general surgeon.

DR. J. HOLINGER said that the radical operation is undoubtedly mutilating. In children, conservative operations will often result in well functioning ears, under conditions where in grown people radical operation would have been indicated. This point was well taken a few years ago by Dr. Crockett, of Boston, and emphasized by Dr. Pierce in the discussion of the evening.

As to treating the sinus, he thought it should be laid bare very extensively, but otherwise left alone. Take away the surrounding bone and eliminate all possibility of retention, but do not touch the sinus itself, because very often there are trombi which at operation are detached, and carried in the lungs. The results of this method are good. He has operated this way for at last twenty years.

He did not think that the difficulties of the radical operation have been sufficiently emphasized. The difficulty in old cholesteatoma is not the great number of cells, but the scarcity of cells. There are usually hardly any cells, and the few are small and difficult to detect. The bone is thick and eburneous. The antrum is not larger than a bean. If there is any gathering of pus in such a case, there is no possibility of drainage. The direction of least resistance is toward the internal ear. He has never encountered any difficulty in finding the antrum, no matter how small it was, by simply following the external canal, then the aditus ad antrum to the antrum. The lateral wall of the aditus ad antrum is always difficult to remove. We must ascertain whether or not the incus is present. He has for this purpose a fine hook probe, which allows him to feel through the remnant of the external canal the aditus ad antrum, and by means of this probe he can always find the bridge, even before he is really down at it.

Another point: In making the flap, one must take away the ridge of the external canal to the very bottom. In this procedure the greatest number of injuries to the facial nerve occur. If a part of the posterior wall of the canal is left it forms afterwards a ridge in the cavity, which is always sensitive and often granulating.

The aim of the operation is to create one cavity lined with epidermis; all the excavations and niches must be eliminated.

Coming back once more to the after-treatment of mastoid operations in acute cases: The antrum and cells are supposed to be a reserve reservoir for air in the middle ear. If we wish to advance this function, it is well to inflate air gently by Politzer's method as soon as the bone has been

filled with granulations. Stress must be laid on the word "gently." The air must not be forced through the granulations. This will often benefit the hearing and avoid retraction of the drum membrane and adhesions in the middle ear, which may mar an otherwise perfect result.

DR. PIERCE asked Dr. Holinger whether he never opens the sinus in cases of thrombosis of the sinus?

DR. HOLINGER said he never opens the sinus at all. He lays it bare very extensively. The less we work with the sinus, the less chance we have of retrograding advancement of the thrombosis towards the other sinuses at the base of the brain and of loosening thrombus masses which may lead to embolisms in the lungs.

DR. ROBERTSON, in closing, said that the following were indications for a radical mastoid: Cases that had not healed from simple operation and operations for preservation of the drum membrane, and all cases where the bones had lost their integrity should be operated on by the radical method. Also cases with ropy discharge of clear fluid coming down from the attic, which is indicative of destruction of the bone tissue.

In those cases of acute suppuration, no matter whether the other cells are affected or not, the tip cell may be affected. If you wish to, it is very easy to destroy the cells of the mastoid, leaving the antrum cells, by attacking it from below.

He thinks that the catheter in the bottom of the antrum would be a good idea. He has never tried it, but will do so when he gets an opportunity.

He attacks thrombosis of the jugular artery and lateral sinus very differently from Dr. Holinger. He is afraid to leave a sinus with a plug in it. In all such cases it has been his practice to tie the jugular off below the plug, so that in the manipulations of the lateral sinus you prevent the sliding off of the thrombosis into the circulation below, and the veins entering the jugular below the bulb should be tied off, too. Then the sinus is fully exposed from the upper space down to the bulb, and the two extremities are closed by temporary plugs by the assistant and the sinus slit in its entire extent. Then the assistant takes the pressure off the upper plug, and if there is no sinus thrombosis a free flow of blood follows. Then the lower plug is taken away to see if you get a flow from the jugular vein and superior and inferior petrosal sinus. If this is plugged the operation is extended into the neck and the jugular is either taken out or destroyed by simply tying. Of course, we cannot take away the superior and inferior petrosal, but we can get most of the plug out.

There is usually quite a little swelling for a few days after the operation, but after a little the collateral circulation takes care of it.

DR. MACLAY asks for more details in regard to the operation. In his operation he takes off the cortex with the straight chisel or gouge. After that he uses the burr. He has found, with the use of the burr, that it is desirable not to use it to the extent of making the tissues too smooth. If they are made too smooth, the granulation tissue does not take well, thus retarding the healing of the wound. All of the cells should be destroyed, leaving the bone a little rough.

DR. HOLINGER said it was not necessary to do a radical operation on children. That depends upon the symptoms presented. If the child has necrosis of the bone, it does not make any difference whether he is twelve or fifty. It is the condition met and not the age that indicates or contraindicates operation.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held October 19, 1914, with the president, Dr. Wesley Hamilton Peck, in the chair.

CONSERVATIVE TREATMENT OF PENETRATING WOUNDS OF THE EYEBALL.

Dr. Albert E. Bulson, Jr., Fort Wayne, Ind., said it was his experience to see and care for a large number of eye injuries, and in looking backward

it seemed as though the proverbial peck of seriously injured eyeballs had been removed because conscientious judgment seemed to indicate the preservation of the eyeball without serious danger to the fellow eye was an impossibility. With increasing experience it seemed to him that some of the eyeballs that were sacrificed might have been saved. Yet in making this statement he was not unmindful of several serious as well as pathetic results, due to mistaken judgment in following conservative treatment, that had come to his attention.

He presented a brief report of three such cases with a view to elucidating the subject.

In all these cases the exciting eye showed no marked signs of improvement while under treatment for the existing uveal disturbance, and under such circumstances it would seem that without favorable progress during the first seven to ten days subsequent to the injury early enucleation was indicated.

There was a happy mean between conservatism and radicalism when it came to a decision as to what treatment served the patient's interest best in penetrating injuries of the eyeball. That many injured eyeballs were slaughtered ruthlessly because the surgeon desired to be on the safe side, could not be doubted, but while every ophthalmologic surgeon should have a wholesome fear of sympathetic inflammation, it was his duty to consider carefully all the possibilities for both good and harm and to adopt any measures that offered hope of saving either vision or eyeball without incurring undue risk. Taking into consideration those extremely rare cases where sympathetic inflammation had occurred after a prompt enucleation, thus indicating the rapidity with which the sympathetic process might develop, he still maintained that in a large proportion of penetrating wounds of the eyeball, even in the ciliary region, we were justified in making an attempt to save the eye, not forgetting that such an eye required clinical observation and with the decision that the condition was growing worse instead of better, enucleation should be performed at once. He was also strongly of the belief that mercury and sodium salicylate given internally and carried to the physiological limits, and the subconjunctival injection of a solution of cyanide of mercury greatly aided in the prevention of sympathetic inflammation. Hexamethylenamin also might be employed with possible benefit.

As an example of cases that at the time of injury might have been considered appropriate for enucleation, the following case was reported:

Case 4. F. L., male, aged 17. Brought by family physician for enucleation. Gave a history of being struck in the right eye with a ten-penny nail flying from the hammer of a fellow workman. The nail penetrated the eyeball and was pulled out by the patient. Patient was seen by him two hours after the injury. The eye presented an irregular wound about three millimeters in length, extending backward from a point about two millimeters from the sclero-corneal junction. A small bead of vitreous and a button of iris presented.

Vision nil, as the anterior chamber was full of blood. The button of iris was very carefully crowded forward with a sterile spatula, the edges of the scleral wound touched with

tincture of iodine, and the conjunctiva slid over the wound and stitched. Patient put to bed and given ninety grains of sodium salicylate per day. An uneventful recovery resulted and with correcting lenses vision of 20-20 was regained. At no time was there any marked injection or tenderness of the eyeball, and the favorable result had continued now for considerably over a year.

Two similar cases were cited.

In the management of these cases of penetrating wounds of the eyeball several things were worthy of consideration. If there had been considerable loss of vitreous in connection with injury of the ciliary region, enucleation or one of its substitutes was indicated. The same was true of extensive injuries of the ciliary body, iris and lens. Injury to eyes that were already the seat of a pathological condition was also more likely to require immediate removal. Injuries accompanied by the retention of a foreign body in the eyeball formed a group of cases that should be managed according to well established rules.

Scleral stitches were not only difficult to place in the edges of a punctured wound, but were unnecessary if the conjunctiva was slid over the wound and carefully stitched. Furthermore, the conjunctival flap had a tendency to prevent secondary infections, which were a prolific cause of mischief in trauma cases. He was a firm believer in the efficacy of tincture of iodine or 25 per cent. of trichloroacetic acid touched to the wound edges, and unless iodine had been used he dressed with bichlorid ointment all of his operative cases.

The patient should be put to bed and kept there for a week. A calomel cathartic, followed by large doses of sodium salicylate, acted beneficially in preventing untoward results. Hexamethylenamin in large doses was also of possible benefit, although its irritating effect upon the urinary tract must be taken into consideration. The development of pain, tenderness and increased congestion was an indication that progress was not satisfactory, and if those, or any one of those symptoms continued, the eyeball should be enucleated. Generally the fate of the eyeball, according to these rules, would be known within ten days or two weeks following the injury. No chances should be taken in a uveal inflammation of traumatic origin.

DISCUSSION.

DR. FRANK E. BRAWLEY said it was a routine measure with him to use large doses of urotropin in the beginning of these cases. At least one hundred grains a day should be given in solution without the addition of any salt, such as sodium citrate or any of the alkaline salts, because the fluids of the body must be slightly acid if the urotropin was to be broken up properly and exert its prophylactic action.

When there was irritation of the urinary passages, the urotropin should be stopped for a while and several doses of some alkali given to alkalize the urine and stop the urotropin from breaking up. Experiments of Kopetsky of New York had shown the great value of urotropin.

DR. THOMAS FAITH said conjunctival sliding in Dr. Bulson's cases was a very important thing. If there was primary infection one could not do anything with it. The conjunctival flap would prevent secondary infection. The bichloride ointment was valuable in these cases. Another thing was, the patient should be given a chance to recover without meddlesome dressings. We should leave the eye tied up long

enough to let the conjunctival flap unite before washing it out and putting in a solution because sometimes in hospitals, where they were supposed to be careful, the droppers were not clean, the solution was not sterile and something was introduced that caused trouble. If we let it go for forty-two or seventy-two hours the conjunctiva would be sufficiently united to the edge of the wound to protect it in the future. He had been surprised at the number of eyes he had been able to save by using a conjunctival flap.

Dr. BULSON, in closing, said the principal object in presenting these cases was to call attention to the possibility of saving many eyes that formerly were thought to be hopeless. Many eyes were enucleated that might have been saved.

EXPULSIVE RETROCHOROIDAL HEMORRHAGE FOLLOWING CATARACT EXTRACTION.

Dr. Horace M. Starkey, Rockford, Ill., reported the following case:

The patient was Mrs. W., aged 87, an acquaintance and patient for about twenty-five years. Commencing central opacity of the right lens was first noted April 20, 1906, and a little later cataract also began to develop in the left eye and progressed until in 1913 there was good perception and projection in the right, while in the left scarcely sufficient sight remained to enable the patient to get around her own house. Incidentally, it might be mentioned that during this time a hyperopia of 2.D. was converted into a myopia of 4.D.

During the past few years the patient's general health had been rather precarious, and while operation was frequently requested, consideration of it was postponed from time to time until the health should continue favorably for a longer time. During the first part of 1914 the condition steadily improved, until by July it was felt that the desired operation might be permitted.

There was nothing in Mrs. W.'s condition to cause more fear of hemorrhage than in the average patient, but rather the contrary. Her arteries were not degenerated, her physician, Dr. Helm, having stated that the arteries were more those of a woman of sixty-five than of one eighty-seven. The blood pressure a short time before the operation was 130 and never seemed much above that.

It was decided that the greatest safety lay in a preliminary iridectomy, and this was accordingly performed July 9th. The patient was quite nervous about the operation and made a sudden movement as the section of the cornea was about complete, so that the point of the keratome punctured the capsule, but a good iridectomy was done. The patient suffered a rather severe shock, with nausea and vomiting lasting a day or two, but made a good recovery with satisfactory coloboma and white sclera, so that by August 12th it was considered advisable to proceed with the extraction, in which he was assisted by his colleague and good friend, Dr. Fringer. The operation was typical, the section being smooth and ample and the lens coaxed out with a minimum of pressure or other manipulation. The speculum was removed and the patient, who had behaved very well, was told that the operation was over and that she should rest

quietly with lightly closed lids for a few moments, when the eye would be dressed and she could return to her room. Very quickly a little vitreous appeared between the closed lids, the patient commenced to groan with pain, more vitreous and then blood appeared, and then the hemorrhage became quite profuse and the pain very severe. This hemorrhage lasted perhaps five minutes. It was impossible to tell just what ocular tissues were present in this escaping blood.

The patient suffered very severe shock and was so reduced that death seemed imminent for several days. She had gradually improved, but even now, after two months, was so weak that she could not sit up at all.

The eye healed in a few weeks and there was now little irritation. The upper part of the cornea was opaque, but there was but slight atrophy of the globe, showing that not all the contents of the eye were expelled.

There had been so relatively few of these accidents reported that it was deemed advisable to add this one to the list.

DISCUSSION.

Dr. ALBERT E. BULSON could sympathize with Dr. Starkey, as he had had two such cases in his own experience during the last twenty-two years. He also mentioned a case that occurred in the practice of Dr. de Schweinitz of Philadelphia.

In Dr. Bulson's first case the man had only one eye, the other having been destroyed by a gunshot injury. At any rate, there was some trauma, and the man came to him with a senile cataract. He had the patient carefully examined by an internist, something he did not always do. The urine was also examined carefully, and the internist thought the man was in fine condition for an operation. The combined operation was done and the extraction was perfectly uneventful. The speaker flattered himself in getting a splendid result, but after removing the speculum and telling the man the operation was over and he would soon be able to return to his room, in waiting for the collapsed cornea to fill up a little so that the dressing could be applied and the man be able to return to his room, the man began to groan and as Dr. Bulson looked over toward the table on which the patient was lying he saw blood rush out from the corner of the eye and it seemed as though the whole eyeball was coming out on the cheek. However, the bleeding stopped, the man was put to bed and made a satisfactory recovery.

Dr. Thomas Faith spoke of similar cases occurring in the practice of Dr. Fisher and Dr. Dodd.

EXTRACTION OF METALLIC FOREIGN BODY FROM VITREOUS BY GIANT MAGNET THROUGH SCLERAL INCISION.

Dr. Carroll B. Welton, Peoria, Ill., spoke of the things that influenced the prognosis of the eye from penetrating metallic bodies, and asked the question, what should be the procedure in eyes that contain a chip of metal in the interior of the eye.

The proper course was to use the magnet in all cases as soon as possible after the injury. The more attraction power the magnet had the better, for with a rheostat the amount of pull could be accurately controlled. Although it was sometimes very difficult and, according to some authorities, impossible to extract a fragment of metal weighing 1/32 of a grain or less, nevertheless attempts at removal should be made.

If the metallic body had entered the eye through

the cornea, no matter where it stopped, whether in the uvea, lens or vitreous, an attempt should be made to draw it forward into the anterior chamber and then remove through the original opening or else make a corneal incision and then withdraw it. If the body should rest posterior to the lens and could not be drawn forward into the anterior chamber, then a scleral incision at a site nearest the metal could be made and an attempt at extraction with the magnet tried. If the particle had penetrated the eye through the sclera and lay posterior to the lens, then its removal should be made through the original wound of entrance, and no effort to draw it forward around the lens into the anterior chamber should be attempted. The opening in the sclera through which the metal passed into the eye might possibly have to be enlarged to permit of its withdrawal. If all attempts at extraction failed, then the eye should be removed, as an eye which contained a foreign body was ultimately lost.

Finally, each case of metallic bodies within the eye must be studied individually, as no single method of procedure would suffice to apply in all cases.

Dr. Welton related a case, the interesting features of which were: 1. That the patient was not absolutely sure that anything had even struck the eye. This showed that no reliance could be placed on the statement of patients as to whether or not a foreign body had penetrated the eye. 2. That the exact localization by means of an x-ray picture was absolutely needed in this case, and this should always be determined in every case of a metallic foreign body in the eye before any attempts at removal had been made. 3. That in all cases where it was suspected that a metallic foreign body was in the eye, the magnetic properties of such tools should be determined before any attempts were made at removal. 4. A remarkable thing in the case was that though the metal passed through the lens, except for a slight line of opacity along the path of the foreign body, it remained perfectly transparent. 5. The case showed further that the removal of foreign metallic bodies was in some cases impossible except through a scleral incision, and that good results were obtained by this method, even though it was contrary to the teachings of Haab.

DISCUSSION.

DR. H. W. WOODRUFF had had a similar experience to the one related by Dr. Welton in which the foreign body penetrated the iris and the lens and was removed a few hours after the injury through the original opening. The lens did not become opaque. Reports of such injuries were made where the lens had been penetrated, and yet no cataract had been produced. He had seen experiments performed on rabbits' eyes in which the needle was plunged into the eye and opacity of the lens produced in the path of the needle slightly around it and then cleared up again in a few days.

He called attention to an accident that happened sometimes in removing steel through the corneal wound. Sometimes the piece of steel would lie behind the iris and the entire iris would come out with the foreign body. It was proper to do an iridectomy where there was no liability to such an accident. He spoke of a case where a large piece of steel weighing five grains entered the eye through the ciliary region. He saw the case a short time after the injury and

removed the piece of steel through the original opening with some difficulty, but it was necessary to enlarge the opening before it could be taken out, owing to the size of the piece of steel. This patient made an uneventful recovery with absolutely no inflammatory signs whatever.

DR. W. FRANKLIN COLEMAN spoke of the relative merits of the large and small magnets in extracting pieces of steel or other foreign bodies from the eye.

DR. A. C. BARTHOLOMEW of Van Wert, Ohio, said that according to the statement of a well-known electrical engineer, the ophthalmologist could not get a better result or a stronger pull with a giant magnet than from a small magnet.

DR. J. P. WORRELL, Terre Haute, Ind., recalled an instance in which a very small piece of iron entered the lens. It did not cause any swelling of the lens, yet slowly the lens became opaque. Later perhaps, if the patient had returned at the proper time, he might have extracted the lens.

As to opacity of the lens clearing up, he mentioned the case of a young man whose eye was stuck with a pin in which the cornea and iris and the lens were perforated. He had a small radiating opacity within a few hours following the injury. When seen the next day he had a very large triangular opacity in the posterior fornix. The ultimately cleared up and his eye became normal.

DR. MAJOR H. WORTHINGTON said that a foreign body in the eye was sometimes overlooked by the general practitioner who first saw the case. He recalled the case of a man, a sheet metal worker, who in punching holes in galvanized iron in a large tank in the country, felt something strike his right eye, although there was no pain except that sensation. At first, he went to a general practitioner, who examined the eye and told him there was nothing in it. He gave him boracic acid and told him to wear a patch over the eye, which he did for the first week. Dr. Worthington saw the patient two weeks later, at which time he was having pain. The eye was red and pupil irregularly contracted and there was some ciliary tenderness. The lens was clear. Under a mydriatic the fundus could be seen and the foreign body located in the vitreous. A skiagraph was made and the foreign body located and extracted through the scleral incision. The result was 20/40 vision with his correction. Patient had a hypodermic astigmatism of 20/40 minus 1. When he came to the speaker his vision was 20/30 minus 1 with glasses, and in the delay of two days in deciding about having an operation done his vision dropped to fingers at two feet. There was opacity in the vitreous. How long was it safe to allow a foreign body to remain in the eye?

DR. CLARK W. HAWLEY said, as to the length of time a foreign body might be allowed to remain in the eye, it would depend entirely upon the aseptic condition of the foreign body when it entered the eye. He recalled the case of a patient, eighteen years ago, where the foreign body had entered the eye and was not known to be in the eye at all. The second day after the injury the man went back to his work. Eight months thereafter the patient presented himself with a dilated pupil and wanted Dr. Hawley to reduce it. Vision in this eye was slightly reduced. There was no irritation about the eye. Upon looking into the eye he saw a piece of steel about the size of an ordinary pin head. He showed the case at the time before the Ophthalmological Society and men of considerable experience said that if the piece of steel was removed the man would lose his eye. He, with the assistance of Dr. Starkey, opened the eye in the same manner that had been described, made a conjunctival flap, took a cataract knife and made an incision and extracted a piece of steel with a small magnet. The piece of steel was in this man's eye eight months unknown to the patient or anybody. It entered at the sclero-corneal junction. The result of the operation was the man had 20/20 vision.

DR. C. G. DARLING said in the removal of a particle of steel through the scleral incision sometimes it became entangled in the choroid or in the edge of the sclera or in the conjunctiva, and Dr. Wilder in one of his cases had made and used a little speculum, the blades of which are five millimeters long, with very fine, short, sharp-pointed pins. An incision was made in the conjunctiva quite a dis-

tance from where the scleral incision was made, a few millimeters long, and the speculum introduced into the conjunctival incision. When the incision was made in the sclera the speculum was introduced into the scleral incision. The points on the speculum were only about a millimeter and a half or a millimeter in length, so that they did not enter the eye, but held the edges of the sclera apart. By means of this small speculum the wound could be kept open to facilitate the removal of the foreign body.

DR. WILLIAM A. MANN stated that sometimes a foreign body penetrated and lodged in the posterior wall of the sclera. The magnet would not touch it if it penetrated the sclera. He had had several such cases, and in only one of them was the eyeball removed and the foreign body removed in that way. Some foreign bodies would lodge in the back of the eyeball and in such cases an x-ray was of advantage in locating them before the use of the magnet to extract them.

PARINAUD'S CONJUNCTIVITIS.

Dr. A. C. Bartholomew reported the case of Miss T., aged 13, who was referred to him on February 14, 1914, by her family physician with the following history:

She first consulted him (the family physician) one week previously, complaining of a lump on the upper lid which scratched the eyeball. The eyelid drooped and there was some discharge in the corner of the eye. There was a piece of tissue projecting below the upper lid and this he grasped with a pair of forceps and pulled away. He did not notice the condition of the glands. The patient was suffering from jaundice at the time.

When seen by Dr. Bartholomew the left upper lid was swollen and drooping and a slight discharge was collected at the inner canthus. On everting the lid it showed a raw, bleeding, hypertrophied surface, involving the inner margin of the turned cartilage. The pre-auricular lymphatic gland was enlarged to the size of a small walnut and was tender to palpation. There was no fluctuation. One gland just below the ear was also involved and there was a slight ciliary congestion, probably from irritation of the cornea.

The other eye was not involved. Under 2 per cent. Adno, three applications every other day, and the use of a collyrium at home, the condition cleared up rapidly and patient was dismissed March 26, 1914.

Dr. Bartholomew also reported a case of unsuspected sarcoma of the eyeball.

DISCUSSION.

DR. W. H. WOODRUFF had had two cases of Parinaud's conjunctivitis. One of them was a mild case in a young woman. She recovered in a few weeks. The infection was comparatively mild. She had the typical characteristic conjunctiva with enlargement of the glands to slight degree. She recovered with very little treatment.

The second case was in a boy, eight or nine years of age. The termination in that case was very unusual. He had considerable enlargement of the glands. The family physician opened a number of these glands, but they did not contain any pus. There was nothing but clear serous fluid in them. There were no organisms discovered at any time in the secretion of the glands. The eye recovered. He removed some granulations after a time because they were so large. The swelling or hypertrophy diminished and the eye returned to normal, but about six months later the boy died. The first week he declined rapidly, and then died without any other diagnosis than Parinaud's conjunctivitis having been made.

CICATRICAL ECTROPION OF THE UPPER AND LOWER LIDS.

Dr. J. P. Worrell, Terre Haute, Ind., read a paper on this subject.

The patient, a man aged 54 years, in an attempt to rescue his wife from burning gas, was severely burned on the hands and face, losing most of his fingers and suffering such injury to the face that the contraction incident to the cicatrization resulted in complete ectropion of all the eyelids.

The patient came under treatment seven months after the accident and presented the following conditions: Below the level of the outer canthus the parts were lined and seamed and so adherent to the underlying tissues that little mobility was preserved. This condition was much aggravated by an injudicious attempt to correct the deformity made soon after the wounds had healed, as was evidenced by the heavy cicatricial lines. The forehead and upper part of temporal region was smooth, the burn having destroyed the superficial layers of the skin. The right eyebrow was wanting and the outer third of the left. The upper lids were everted, the tarsus curved on itself and thickened, the eyelid rolling out when the patient looked downward. Cul de sac preserved. The lower lids were stretched downward, obliterating the cul de sac. The conjunctival surface was red, somewhat rough and lying in the plane of the skin below. The tarsus was adherent to the underlying tissues. The lid margin was indicated simply by the line of transition from the mucous membrane to the skin and the presence of a few cilia. The conditions in the right were aggravated by the displacement downward and outward of the outer canthus, including the external palpebral ligament.

Correction of the deformity was made by a series of operations, running over a period of several months. Each operation was limited to one lid, inasmuch as the operation was necessarily a tedious one and it was impracticable to prolong the anesthesia. The method employed was the use of sliding flaps, supplemented by Thiersch and Wolfe grafts. In restoring the lids proper, the principle of removing the new cicatricial area as far from the lid margins as possible, as emphasized by Hotz, was followed, such modification of his method being made as the exigencies of the case demanded.

The final result was most gratifying, restoring the lids to their normal position with preservation of their function. From a cosmetic standpoint it was fairly satisfactory.

After the restoration of the lids to their place the condition of the cornea greatly improved, so that the iris could be seen throughout its entire circle. The anterior chamber deep, showing that what was thought to be an adherent glaucoma was but hypertrophy of the epithelium in the attempt of Nature to preserve the eye against the evil effects of exposure. Behind the clearest portion of the cornea iridectomies were subsequently made, giving vision by which ordinary newspaper type could be read.

The diversity of condition afforded an opportunity for the trial of various methods of covering the raw area so that the comparative merits of flaps and the various forms of grafts could be advantageously studied. Thiersch and Wolfe grafts played a larger part in the correction of the trouble than did sliding flaps. Of these the Thiersch graft gave good results, "taking" easily, and was followed by little or no contraction of the underlying tissues. The chief trouble with Wolfe grafts is their marked disposition to contract. However, where it is necessary to "fill in" they furnish a means of building up lacking parts that make them indispensable. The effect of their contraction can be avoided in a large degree by making them of ample size and in exercising great care in their preparation, avoiding traction, and reducing their manipulation to the minimum.

The dressing consisted of an extremely thin layer of absorbent cotton wet in normal saline solution, over which was placed a dry pad of cotton covered with some impervious material, the whole being swathed in gauze and bandages to secure quietude of the parts and maintain equable temperature.

DISCUSSION.

Dr. A. BULSON agreed with Dr. Worrell in regard to the merits of the Thiersch and Wolfe grafts. The Thiersch graft was much better because it was more flexible. On the other hand, the speaker believed that a properly trimmed Wolfe graft would oftentimes give a quicker and more satisfactory result than a Thiersch graft. Attention was called to the value of scarlet salve in bringing about epidermization where the grafts failed to cover the entire surface, where there were eyelets of raw tissue, and where the Wolfe or Thiersch graft had not taken. He had seen excellent results in such cases by keeping these areas covered with salve which was so highly recommended by skin men.

PAUL GUILFORD. Secretary.

FULTON COUNTY.

The seventieth meeting of the Fulton County Medical Society met in the auditorium of the Y. M. C. A. building in Canton, Ill., December 1, 1914, and was called to order at 1:30 p. m. by President Howard.

Minutes of the October meeting were read and adopted. Necrologist Stoops reported the death of Drs. Murphy and Flack. On motion of Drs. Cluts and Coleman the report was adopted and the president instructed to appoint a committee of three to draft resolutions of respect concerning Dr. Murphy. Dr. Flack's resolutions were adopted at the October meeting. The president appointed Drs. Stoops, Cluts and Hayes as such committee, who later presented the following, which was adopted:

WHEREAS, Death has removed from our midst our professional fellow and co-worker, Dr. Veda C. Murphy, who died on October 13, 1914, therefore be it

Resolved, That it is the sense of this meeting that the members of the medical profession and of the Fulton County Medical Society have lost an esteemed, honored and highly conscientious member, a loyal friend, a worthy woman of highest refinements and intellectuality and a physician of ability; that we

deeply deplore her untimely demise, and that we extend to the family of the deceased our sincere sympathy in this their great loss.

P. H. STOOPS,
T. C. HAYS,
A. C. CLUTS,
Committee.

On motion of Ray and Hays, the president appointed Drs. Snively and Stoops as a committee to present a revision of the constitution and by-laws of the society at the next meeting.

The president and secretary presented specimen pages of letterhead and envelopes for the society which on motion of Drs. Betts and Hays were adopted as the official paper of the society for the ensuing year, and that the bill be paid by the society.

Application for membership from Dr. W. L. Crouch of Fairview was read and referred to Drs. Snively, Stoops and Scholes as membership committee pro tem, with instructions to report at this meeting.

The committee reported favorably on the application and on suspension of the rules the secretary was instructed to cast the vote of the members present in favor of the election of Dr. Crouch to membership.

The secretary cast twenty votes accordingly and the president declared Dr. Crouch elected to membership.

Drs. Stoops, Scholes, Snively and Betts presented papers per program which were liberally discussed by most of the members present.

The following members were present: Drs. Howard, Stoops, J. E. Coleman, Cluts, T. R. Plumer, Ray, W. D. Nelson, Parks, W. H. Betts, G. S. Betts, Hays, Snively, Adams, Beatty, Scholes, E. W. Reagan, H. H. Rogers, S. A. Oren, Allison and W. L. Crouch and Whitlock.

Adjourned.

D. S. RAY, Secretary.

GREENE COUNTY.

The annual meeting of the Greene County Medical Society was held in Roodhouse Friday, December 11, 1914. Members present: E. E. Jouett, Howard Burns, H. W. Converse, J. J. Ehresmann of Carrollton, C. R. Thomas, H. W. Smith, R. O. Hoathorn, L. O. Hamilton of Roodhouse, C. B. Foreman of Kane, F. N. McLaren, L. O. Frech, E. J. Peek, A. W. Foreman, G. W. Burns, H. C. Campbell, H. A. Chapin of White Hall. Visitors, P. B. Magnuson of Chicago, M. B. Titterton of St. Louis, C. D. Center of Quincy, C. E. Black of Jacksonville, H. R. Bohannon of Jerseyville and W. T. Knox of Manchester.

Meeting was called to order by President F. N. McLaren. The minutes of the previous meeting were read and approved.

Motion made by Dr. Frech and carried that Section 2, Chapter 2 of the by-laws be amended as follows: Bi-monthly meetings shall be held on the second Friday in February, April, June, August, October and December.

The application of Dr. Converse of Carrollton was reported favorably by the board of censors and on

motion of Dr. Burns the secretary was ordered to cast the ballot and he was declared elected to membership.

Election of officers was as follows: President, L. O. Frech; vice-president, C. B. Foreman; secretary and treasurer, H. A. Chapin; censor, three years, C. R. Thomas.

Drs. P. B. Magnuson of Chicago and M. B. Titterington of St. Louis then gave a demonstration on "Some Special Points in the Treatment of Fractures, Operative and Non-operative, Illustrated by Lantern Slides." Dr. Titterington of St. Louis had a large number of x-ray pictures of fractures and demonstrated the ease and accuracy of the diagnosis of the various fractures with the aid of an x-ray, many of which would otherwise not have been discovered, but if neglected would have caused the patient much pain and in many cases ankylosis and loss of function. Dr. Magnuson discussed each picture as displayed and in very concise words outlined the treatment to secure the best functional results. He said that in the past we were satisfied with good functional results, but the use of the x-ray had caused the physician and the patient to demand good anatomical conditions. The use of the Lane plate is being discarded, as it acts as a foreign body, while the ivory plate and screws do not cause any irritation, having the advantage of being readily absorbable, not becoming loose within the fragments, and holding the fractured bones in perfect apposition. Dr. Magnuson does not advise operation in all cases of fractures, but says in many cases it is the only way to secure satisfactory results. The paper was discussed by Dr. Black of Jacksonville, who stated that he was having very nice results in some cases with the use of the spring steel, but commended the ivory plate and screws as probably being an ideal method in operative cases. The paper was further discussed by Dr. Center of Quincy, who made some very interesting remarks.

Dr. Foreman of White Hall moved that the society extend a vote of thanks to the visiting speakers for their most excellent and instructive demonstration. The motion was carried unanimously. The meeting was one of the largest and certainly one of the most interesting and instructive in the history of the society, and all felt more than repaid for their attendance and expressed a desire that we might soon have the pleasure of a return visit from the speakers with a lecture and demonstration on "Sacro-Iliac Dislocation."

H. A. CHAPIN, Secretary.

HENDERSON COUNTY.

The Henderson County Medical Society met at Stronghurst November 10, 1914, at 2 o'clock p. m. The following officers were elected for the ensuing year: Dr. W. J. Emerson, president, Carman; Dr. B. L. Ditto, vice-president, Gladstone; Dr. I. F. Har-

ter, secretary-treasurer, Stronghurst; Dr. E. E. Bond, censor, three years, Stronghurst.

Respectfully,

J. P. RIGGS, M. D.

IROQUOIS-FORD.

The regular annual dinner and meeting of the Iroquois-Ford Medical Society was held at the New Gilman House, Gilman, Ill., December 1, 1914. The following members were present: Drs. O. O. Hall, T. N. Boue, George J. Laben, Chas. S. Mellen, H. R. Struthers, Martha Anderson, L. H. Geiger, R. N. Lane, Horace Gibson, L. C. Diddy, S. S. Fuller, E. E. Hester and D. W. Miller.

After enjoying a most excellent dinner the meeting was called to order by Dr. Lane, the vice-president, the president being absent.

The minutes of previous meetings were read and approved.

On motion Dr. Lester C. Diddy was elected a member.

On motion Paxton was selected as the place for our March meeting and that we return to the former arrangement of holding the four meetings of the year at different places.

The following officers were elected to serve next year: Dr. R. N. Lane, president; Dr. Martha Anderson, vice-president; Dr. D. W. Miller, secretary and treasurer; Dr. L. H. Geiger, censor for three years; Drs. H. R. Struthers and S. S. Fuller were elected first and second alternate delegates to the state society.

Dr. George J. Laben read a paper on "Pyelitis in Children." Dr. O. O. Hall opened the discussion.

Dr. S. S. Fuller read a paper on "A Resume of Literature Showing Infection as the Cause of Hodgkin's Disease, Rheumatism, Endocarditis, Arthritis Deformans, and Ulcer of Stomach." The paper was discussed by Drs. Hall, Gibson and Lane.

Dr. Gibson read paper of Dr. Colteaux on "Metastatic Infection."

Dr. R. N. Lane read a paper on "Puerperal Sepsis," which was discussed by Drs. Boue, Diddy and Fuller.

On motion meeting adjourned.

D. W. MILLER, Secretary.

JASPER COUNTY.

The Jasper County Medical Society met in Newton on December 4, 1914. Present: Drs. Franke, Hutton, Robb, Maxwell, Kittle and Prestley.

Dr. Frank Buckmaster of Effingham gave a very interesting address on "Fractures," illustrated with skiagraphs from his private and hospital cases. Owing to inclement weather the out-of-town physicians were rather sparsely represented.

At the October meeting we had the pleasure of listening to a very able address from our councillor, Dr. E. B. Cooley of Danville.

We are now endeavoring to arouse interest in our members by inviting them to report some of their

everyday cases and when possible bring the patient to the meeting and give all members an opportunity to examine and discuss the case.

JAMES P. PRESTLEY,
Secretary-Treasurer.

MADISON COUNTY.

The annual election of the Madison County Medical Society held at Alton on December 4, 1914, resulted as follows: President, Dr. Lay G. Burroughs of Collinsville; vice-president, Dr. R. D. Luster of Granite City; secretary, Dr. E. W. Fiegenbaum of Edwardsville; treasurer, Dr. R. S. Barnsback of Edwardsville; state delegate, Dr. E. W. Fiegenbaum of Edwardsville; alternate, Dr. Mather Pfeiffenberger of Alton; medico-legal member, Dr. J. B. Hastings of Alton; board of censors, Dr. G. Taphorn of Alton, to serve three years.

E. W. FIEGENBAUM, Secretary.

(The following additional "doings" in Madison county were received from an anonymous source owing, doubtless, to Dr. Fiegenbaum's innate modesty.—Editor.)

At a meeting of the Madison County Medical Society held at Alton December 4, 1914, Dr. E. W. Fiegenbaum of Edwardsville was re-elected secretary of the society for the eighth consecutive year.

Dr. Fiegenbaum was very much surprised when presented with a magnificent electric library lamp from the society for the services rendered the organization during the past seven years. Dr. Lay G. Burroughs of Collinsville made the presentation speech. Dr. Fiegenbaum responded with a speech of appreciation and thankfulness.

The lamp is a very large and fine piece of art. On the base is an inscription which reads: "Presented to Dr. E. W. Fiegenbaum by the Madison County Medical Society in appreciation of services, December 4, 1914."

SHALL MADISON COUNTY HAVE A TUBERCULOSIS COLONY?

W. W. HALLIBURTON, M. D.,
ALTON, ILL.

Mr. President and Gentlemen of the Madison County Medical Society and Madison County Anti-Tuberculosis Society: I have been called on to present to this society the question: Shall Madison county establish a tuberculosis colony? I answer, by all means, yes, and will now give a few of the many reasons why it should be done. The type, grade and standard of civilization of every nation, state or community is justly judged by the care and consideration given to their indigent and afflicted poor. Our state laws compel us to protect the community from such contagious diseases as smallpox, scarlet fever and diphtheria by quarantine, but, strange to say, tuberculosis, which is equally contagious and causes more deaths than all the other contagious diseases combined, is allowed to go unrestrained, apparently, simply because the tuberculosis contagion is slow and

insidious in its attack and progress. While, in fact, the laws of contagion should be just as rigidly enforced in tuberculosis as in other contagious diseases, we cannot do this unless the county will provide proper facilities and means for handling and housing those poor and unfortunate persons. In the early stage of the infection they receive practically no treatment and are left in close and intimate association with relatives and friends, thus sowing and implanting this most insidious and remorseless of all contagious diseases, often before it is even recognized. And even after it is recognized this close family relation is continued from necessity until the patient has become helpless and the necessities of the family compel them to ask the county to take charge of the case, which is then beyond the hope of any medical treatment. Now this is not as it should be, for by nation-wide education as to how tuberculosis should be handled and isolated it could in time be eradicated. Therefore it behooves Madison county to awake from her long sleep and indifference and assume her share and obligations in this nation-wide war on tuberculosis. In the state of Pennsylvania every county has established a free tuberculosis colony, where any person living in the county can have, free of cost, a home and the best of medical treatment, or if they prefer they can go there and receive treatment, go home and return for treatment, as the doctor may direct. This is as it should be and is eminently worthy of emulation by every county in the great state of Illinois.

MORGAN COUNTY.

Meeting October 15, 1914.

A joint meeting with the Morgan County Dental Society was held at the Dunlap House, Jacksonville, October 15, 1914. After dinner President J. C. Widenham of the Dental Society introduced Dr. Herbert A. Potts of Chicago, who gave a most valuable address on "Mouth Infections in Relation to Systemic Conditions." Following the address, he exhibited a number of skiagraphic films, demonstrating oral pathology. Twenty-one doctors and twelve dentists attended the dinner and address.

Meeting November 28, 1914.

The annual dinner was held at the Peacock Inn, Jacksonville. Dr. Charles L. Mix of Chicago was the guest of honor and spoke after dinner on "Symptomatology and Differential Diagnosis of Gastric and Duodenal Ulcer and Biliary Tract Infection."

Dr. Mix in speaking of duodenal ulcer mentioned its history of "neurasthenia," spring and fall recurrences, the pain, tenderness and hemorrhage; negative symptoms of absent icterus unless ulcer is at papilla and blocking the common duct exit, no colicky pain, no infection signs, no vomiting unless perforation, no leucocytosis. Seventy-five per cent of cases show hyperacidity.

Consideration of gastric ulcer: Patients are comfortable for longer periods. Some cases may have

only a single attack. They usually suffer a considerable loss in weight. Pain occurs soon after eating. Tenderness is usually in an area about the size of a quarter and in epigastrium in middle line. Hemorrhage, usually a good sized one, which, if acid, strongly points to gastric ulcer. Occult blood in stomach contents is not of much value in making this diagnosis. It is possible to make double diagnosis of duodenal and gastric ulcer in same individual.

Biliary tract infection: Fifty-two per cent of cases have typhoid history. Puerperal infections and appendicitis furnish etiological diagnosis for a certain fraction of cases. Colic, plus icterus, indicates a moving body in the tract. A gradually developing icterus, sans colic, should make one suspect a neoplasm; infection signs present; no blood in stools or stomach contents, as a rule; temperature increases and colic occurs when the peritoneum is irritated.

Dr. Mix's presentation was discussed by Drs. Cole, Deal, Adams, Hairgrove, Milligan, Hardesty, Franken, Reid and Stacy.

Thirty-six attended the dinner and address.

Meeting December 10, 1914.

A meeting was held at the Medical Library, Jacksonville. The annual reports of officers were read, after which the following were elected to serve the society next year: President, Dr. George H. Stacy; vice-president, Dr. G. R. Bradley; secretary, Dr. T. G. McLin; treasurer, Dr. A. L. Adams; librarian, Dr. Carl E. Black; censor, three years, Dr. H. C. Wolman, all of Jacksonville.

GEORGE H. STACY, Secretary.

THE NORTH CENTRAL ILLINOIS MEDICAL ASSOCIATION.

Forty-first Annual Meeting at Wenona, Ill., December 1 and 2, 1914.

Sixty physicians were in attendance and sixteen new members were added to its rolls.

An interesting program was carried out, which included a six o'clock dinner at Hotel Stanton given by the local medical profession, followed at 7:30 p. m. by public exercises at the Presbyterian church. These consisted of the annual address of the president, Dr. George A. Dicus, subject, "The Physician and the Surgeon," the conferring of life membership certificates for twenty-five consecutive years of service in the association upon Drs. James Wiley Pettit of Ottawa, George Allen Dicus of Streator, Thomas Henry Trainor of Barrington and Thomas Wilson Burrows of Ottawa by Dr. Charles D. Thomas of Peoria, first vice-president; an address by Dr. Albert L. Brittin of Athens, president of the Illinois State Medical Society, relative to the welfare of the profession and medical organization throughout the state of Illinois, and a most able and admirable general public address on "Adjustment, the Law of Organic Life," by Dr. Frank P. Norbury of Springfield.

The meeting was full of interest and value to all who were able to attend the sessions. This associa-

tion, after more than two-score continued years of service to the medical profession of its locality, has now come to be one of the older and long active district medical organizations of the state.

One the close of its program of exercises on the second day it adjourned to meet at Peoria in 1915 under the direction of the following officers: President, Dr. Chas. D. Thomas, Peoria; first vice-president, Dr. James A. Marshall, Pontiac; second vice-president, Dr. Frederick W. Wilcox, Minonk; secretary and treasurer, Dr. George A. Dicus, Streator.

WM. O. ENSIGN,
Ex-Secretary.

OGLE COUNTY.

The regular meeting of the Ogle County Medical Society was held in the opera house, Forreston, October 21, at 1:30 p. m. President Stevens not being present, Vice-President Griffin called the meeting to order. Minutes of previous meeting read and approved. Roll call found the following members present:

Drs. Beveridge, Brown, Beard, Brigham, Houston, Hanes, Johnston (Byron), Johnston (Rochelle), Gardiner, Kittler, Kretsinger, Griffin, Juks, McEachern, Akins, Roe and Overfield.

Visitors present: Drs. J. F. Percy, Galesburg; Karl Snyder, Freeport; C. W. McPherson, Hazelhurst; B. A. Arnold, Freeport; W. B. Stiver, Freeport, and Miller, German Valley.

Program: Dr. J. F. Percy of Galesburg read a very interesting paper on the "Use and Success of the Thyroid Treatment in Bright's Disease." The doctor cited many cases that had received permanent cures and others that had been greatly benefited.

Dr. Karl Snyder of Freeport gave an interesting talk on "Some Observations of Surgery" seen while on his recent trip to Europe. "Iodine is not used in hospital practice as it is used in this country. Antiseptic surgery is on the decline in many hospitals and radium is used more extensively in cancerous condition of the stomach."

On motion of Dr. Killer that the next meeting be held at Rochelle; carried.

On motion of Dr. Beard that we give a vote of thanks to Drs. Percy and Snyder for their able papers; carried.

Adjourned to meet at Rochelle in February, 1915.

DR. J. T. KRETSINGER,
Secretary.

THE PEORIA CITY MEDICAL SOCIETY.

New officers elected December 15, 1914: President, C. D. Thomas; first vice-president, J. F. Cooper; second vice-president, O. J. Roskoten; secretary and treasurer, E. W. Oliver; censor, A. L. Corcoran; delegate (1915-16), M. S. Marcy; members legislative committee, W. R. Allison and E. E. Barbour; banquet (annual) committee, J. E. Huber, R. A. Kerr, E. E. Gelder.

Society thriving, 145 members, attendance aver-

age 47.6. (Average three years ago, 25.) Largest attendance, 127. Twenty meetings each year, first and third Tuesdays.

ROCK ISLAND COUNTY.

Rock Island County Medical Society held a regular meeting at New Harper Hotel, Rock Island, on Tuesday, December 8, 1914. Present: Members, Seids, Snively, Hollowbush, Crooks, Beam, Lachner, Williams, Love, Craig, West, Beck, Sargent, Eddy, Souders, Long, Leipold, Miller, R. B., Chapman, Sala, Ostrom, Norman, Eyster, Bernhardt, Jr., Conroy, Robb, Barding, De Silva, Littig (28). Visitors: Wahlberg, Miss Peterson, J. V. Littig, Bendixen Donohoe, Ridlon (6).

Minutes of October meeting heard and approved. Order of business reversed to make scientific session the first of the program. Dr. John Ridlon of Chicago favored the society with a most profitable "Consideration of Recent Methods in the Treatment of Potts' Disease," the talk being illustrated with case pictures through the co-operation of Dr. Littig, who supplied and operated lantern. A maximum of interest was aroused.

Business session followed a rising vote of thanks to Dr. Ridlon. Dr. F. J. Conroy was elected to membership. Dr. T. J. Flatley was voted to membership upon presentation of transfer card from Langlade County, Wisconsin Society. Application of Dr. W. K. Wahlberg was read and committee appointed. A letter was read from the secretary of Scott County, Iowa, society proposing a joint meeting to be held in June next and a committee with power to act was appointed upon carried motion. Invitation of the Scott County Society to attend a meeting on the 17th inst., at which Dr. F. A. Cook is to be the speaker of the evening, was accepted. Dr. Ostrom, at the request of Postal employes, presented a petition of theirs relative to Congressional H. B. No. 5139. Petition granted. A proposed by-laws amendment, adding a section 10 to chapter 1, and providing for life membership, was read and laid over.

Adjourned until February.

W. D. CHAPMAN,
Secretary.

VERMILION COUNTY

The Vermilion County Medical Society met on December 14, 1914, at the Elks dining room, Danville, Ill. The state president, Dr. A. L. Brittin, was with us and a banquet was given in his honor.

The program of the evening consisted of papers by Dr. C. E. Brown of Rossville on "Pneumonia," and Dr. J. M. Guy of Danville on "Pleurisy." Both were freely discussed. State President Brittin gave a very interesting talk.

The following officers were elected for the ensuing year: President, Dr. Solomon Jones, Danville; vice-president, Dr. J. M. James, Henning; secretary-treasurer, Dr. O. H. Crist, Danville; censor, Dr. R. A. Cloyd, Catlin; delegate to state meeting, Dr. R. A.

Cloyd, Catlin; alternate, Dr. S. C. Glidden, Danville. Forty members were present.

O. H. CRIST, Sec'y.

Personals

Dr. Frank A. Stahl, Chicago, has returned after five months abroad.

Dr. William P. Sherman, Aurora, was operated on for appendicitis, December 9.

Dr. George D. Hauberg, Moline, has been appointed official deputy coroner of Rock Island county.

Dr. Albert N. Mueller has been appointed city physician of Rock Island, vice Dr. George G. Craig, resigned.

Dr. James P. Prestley, Newton, has recently been appointed as examining surgeon on the U. S. Pension Board.

Dr. J. Lenne Aleshire, Plainville, was painfully injured in a collision between his automobile and a street car in Quincy, December 4.

Frank M. Elliott, president of the Evanston Hospital Association, after nineteen years of service, has resigned on account of ill health.

Dr. Enos S. Spindel, Springfield, has been appointed a member of the State Board of Health, vice Dr. James J. Hassett, McLeansboro, deceased.

Dr. D. Hally Smith of Paris, France, who has been visiting his parents in Newton, has recently returned to France to engage in surgical work with the French army.

Dr. George W. Mahoney was elected vice-commander and Dr. Frank P. St. Clair, surgeon, of the Veteran Corps of the Seventh Infantry, Ill., N. G., at its third annual meeting, December 19.

Charles P. Horner, M. D., Tampico, Illinois, has sold his Tampico practice to Dr. R. H. Wilson, ex-interne of the West Side Hospital, and intends to take one year of special work in diagnosis and internal medicine in Chicago.

News Notes

—The Compton Hospital was reopened December 3. It is now under the management of Dr. Clarence G. Pool.

—The chief of police, on December 8, issued instructions for the arrest of any one distributing sample packages of medicine.

—A resolution indorsing a petition before the city council to establish zones of quiet around hospitals, was adopted at a meeting of the council of the Chicago Medical Society, December 8.

—A hospital to be used exclusively for tuberculosis patients is to be erected at Collinsville by Dr. Moses W. Harrison, who now conducts a private hospital and tuberculosis colony at that place.

—The Visiting Nurses' Association has issued an especial appeal for funds and announces that if the general public does not come to its aid many of its patients among the sick poor of the city will die from lack of nursing care.

—*The Dietetic and Hygienic Gazette* has been purchased by *Critic and Guide Company*, and will be combined with the latter under the editorship of Dr. Wm. J. Robinson at 12 Mt. Morris Park W., New York City.

—The Illinois State Association for the Prevention of Tuberculosis and the other antituberculosis associations of the state are endeavoring this year to realize sufficient funds from the sale of Red Cross seals to pay for the services of a nurse in each community in the state.

—Plans for the buildings for the State Colony for Epileptics, Dixon, have been prepared and bids for their construction have been asked for. The buildings consist of an administration building with three wings; dining halls and a service kitchen and a dormitory building to accommodate 52 persons. The dormitory cottages are to be built in groups of four around the main buildings.

—The following women physicians of Chicago have offered to give their services free to working women and also to help in the municipal dance halls. Drs. Sadie B. Adair and Lindsay Wynekoop have been assigned to the south side dance halls; Drs. Blanche Bergman and Agnes Mikkelsen to those on the west side, and Drs. Effie L. Lobdell and Clara P. Seippel to the north side dance halls.

—An increase in the typhoid cases in the area supplied by the Chicago Avenue pumping station caused an investigation that disclosed some typhoid carriers repairing one of the wells and a small stream of unknown origin and carrying colon bacilli was discovered. The *Bulletin* of December 19 advised people in that district to

boil their water—a notice that has rarely appeared since the drainage canal has been in commission.

—Dr. James W. Pettit and associates, Ottawa, announce that the Illinois Valley General Hospital will be built on the South Bluff, west of the Ottawa Tent Colony, during the next year, at an expenditure of from \$50,000 to \$75,000. The first three buildings are to be the administration building which will be flanked on either side by an annex connected by corridors. Especial attention is to be given to the open-air treatment, and all classes of ailments will be treated at the institution.

—Contributors to the *JOURNAL* will expedite publication by sending all *original articles* to Dr. Clyde D. Pence, Editor, 3338 Ogden Avenue, and *society proceedings* to Dr. Henry G. Ohls, managing editor, 927 Lawrence Avenue. A blank reprint order with price list is mailed with each author's proof and if reprints are desired the order blank should be filled out and returned with check and the proof. After the *JOURNAL* is printed all type for which a reprint order has not been received is destroyed.

—The directors of the Fenger Memorial Fund announce that \$600 have been set aside for medical investigation in 1915. The money will be used to pay all or part of the salary of a worker, the work to be done under direction in an established institution, which will furnish the necessary facilities and supplies free of cost. It is desirable that the work undertaken should have a direct clinical bearing. Applications giving full particulars should be sent to L. Hektoen, 629 So. Wood St., Chicago, before January 15, 1915.

—*The Effingham County Physician* for December, with its twelve pages of medical news and comment, is decorated with a "post card picture" of St. Anthony's Hospital at Effingham. It also contains a list of members with figures indicating the number of meetings attended by each and stars showing who took part in the programs. The excellent quotations from a great variety of sources indicate that the editor has a large exchange list and can spot the items of interest and value to his readers. Such a live publication must be a source of help and inspiration to the society.

—The Chicago Polish Medical Society held its yearly meeting at La Salle Hotel, December 18, 1914, and elected the following officers: Dr. W. Kuflewski, president; Dr. T. Z. Xelowski, vice-president; Dr. S. Boguszewski, treasurer; Dr. A. Pietrzykowski, secretary. Executive committee: Dr. M. Stupnicki, Dr. R. Ostrowski, Dr. L. Tabenski.

Adopted resolution to aid the orphans and widows of Polish doctors in Poland and open the subscription. Any one desiring to contribute for the cause may send their contribution to the secretary of the Chicago Polish Medical Society, Dr. A. Pietrzykowski, 866 Milwaukee Ave.

—The City Club of Chicago, 315 Plymouth Place, installed an extensive public health exhibit November 30—January 16, to which the Chicago Health Department, the Illinois State Board of Health, Infant Welfare Society, Chicago Tuberculosis Institute, American Medical Association and other organizations contributed extensive materials in the form of placards, charts, models, etc., that occupy four floors of the clubhouse. Numerous conferences are being held with experts on all phases of health work. School hygiene, infant welfare, sanitation, food adulterants, the tuberculosis campaign and patent medicine evils, all receive detailed illustrations. A demonstration of the health needs of the city to the finance committee of the council at one of the sessions was an important feature of the exhibit. It is well worth an extended visit and study.

—The Civil Service Commission of Cook County will hold an examination, Jan. 21, 1915, for the position of director of the Juvenile Psychopathic Institute, open to all physicians in the United States. The position will pay \$5,000 a year. The director is required to make thorough physical and mental examinations of the delinquent and dependent children referred to the institute by the Juvenile Court and must interpret the tests and advise the judge in the proper disposition of the cases. The position requires experience in psychopathic work as well as in nervous and mental diseases. Applications for the examination should be secured from the commission, Room 547 County Court House, before the date of the examination.

Marriages

ROBERT EMMETT FLANNERY, M. D., to Miss Mary Kearns Black, both of Chicago, November 11.

CHARLES PATTON BLAIR, M. D., Monmouth, Ill., to Miss Lena Blanche Wilson of Des Moines, Ia., October 10.

MARY CATHERINE COUCH, M. D., Chicago, and Mr. Thomas T. Mora of Fajardo, P. R., at Rio Piedras, P. R., November 19.

FRANKLIN BENNETT MCCARTY, M. D., to Miss Mary Bryan, both of Chicago, October 31.

S. A. WEISS, M. D., to Miss Gertrude C. Marblestone, both of Chicago, December 6.

Deaths

ALLAN ALEYNE MATHEWS, M. D. Rush Medical College, 1879; of Oak Park, Ill.; died November 19, aged 61.

CHARLES M. EATON, M. D. Medical College of Indiana, Indianapolis, 1878; died at his home in Robinson, Ill., September 10, from nephritis, aged 68.

JAMES R. SEYMOUR, M. D. Eclectic Medical Institute, Cincinnati, 1883; died at his home in Raymond, Ill., November 28, from cerebral hemorrhage, aged 65.

PIERCE TYRRELL, M. D. Eclectic Medical Institute, Cincinnati, 1866; one of the oldest practitioners of Illinois; died at his home in Elgin, November 19, aged 85.

HARVEY M. DALLY, M. D. Medical College of Indiana, Indianapolis, 1881; a physician and druggist of Pontiac, Ill.; died at his home in that place, November 29, aged 59.

WILLIAM H. HALL, M. D. Eclectic Medical Institute, Cincinnati, 1870; died at his home in Havana, Ill., October 30, a short time after a surgical operation performed in Chicago, aged 74.

IRA JOHN SCHOTT, M. D. Hahnemann Medical College, Chicago, 1887; of Naperville, Ill.; died suddenly from heart disease in that place, November 21, aged 54.

ISAAC MOORE, M. D. St. Louis Medical Col-

lege, 1870; for many years a practitioner of Alton, Ill.; died in the Deaconess Hospital, St. Louis, November 19, after a surgical operation, aged 67.

CHARLES H. MORDOFF, M. D. Chicago Homeopathic Medical College, 1881; Hahnemann Medical College, Chicago, 1905; a member of the Illinois State Medical Society; died at his home in Genoa, Ill., November 16, from cerebral hemorrhage, aged 58.

JOSIAH CLAIRE VIOLET, M. D. Northwestern University Medical School, Chicago, 1910; a Fellow of the American Medical Association and formerly a resident of Chicago; died in Pomona, Cal., where he had gone in search of health, November 22, aged 32.

SIMON PRESTON BROWN, M. D. Rush Medical College, 1869; for more than forty years a practitioner of Elgin, Ill.; died at his home in that city, November 7, from senile debility, aged 82. At his funeral eight physicians of Elgin served as active pallbearers.

ANDREW CURSENA GREGG, M. D. Starling Medical College, Columbus, Ohio, 1901; formerly of St. Mary's and Brookville, Pa., but more recently a resident of Chicago; died in the Englewood Hospital, November 2, from uremia, aged forty-five.

NEW AND NON-OFFICIAL REMEDIES.

Since publication of New and Non-Official Remedies, 1914, the following articles not previously described have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Non-Official Remedies":

During November the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies:

Antiseptic Supply Co.: Cupric Applicators.

Laboratory of W. T. McDougall: Pasteur Antirabic Vaccine.

H. K. Mulford Co.: Solution Pituitary Extract.

Radium Company of America: Radium Bromide, Radium Chloride, Radium Sulphate.

Standard Chemical Company: Radium Carbonate.

Clinical Evidence: In view of the unsatisfactory evidence for the therapeutic value of articles proposed for inclusion with New and Non-Official Remedies, the Council adopted the following statement:

"Claims are often made, however, which are incompatible with common experience and sometimes defy the laws of Nature. Claims which seem highly improbable will not be admitted by the Council unless the manufacturer supports them by evidence acceptable to the Council. In doubtful cases the Council acts on these questions under the advice, and with the cooperation, of its staff of clinical consultants."

Change of Formula. In view of information received from the Antiseptic Supply Company the Council has modified the description of Supric-sticks to indicate that these are tipped with a mixture of copper sulphate, alum and potassium nitrate, containing 20-25 per cent of copper sulphate.

Pituitary Liquid. Armour & Company have informed the Council that its Pituitary Liquid is adjusted to uniform strength by the method of G. B. Roth (Jour. of Pharm. and Exper. Thera., July, 1914). The description of Pituitary Liquid, Armour, has been revised to indicate this.

Concentrated Diphtheritic Antitoxin: Marketed in syringe packages containing from 500 to 7,500 units. F. Stearns & Co., Detroit, Mich.

Bacillus Coli Communis Vaccine: Marketed in boxes of 6 ampoules. E. R. Squibb & Sons, New York City.

Staphylo-Acne Vaccine: Marketed in boxes of 6 ampoules. E. R. Squibb & Sons, New York City (Jour. A. M. A., Nov. 14, 1914, p. 1763).

Pyocyanus Vaccine: Marketed in boxes of 6 ampoules. E. R. Squibb & Sons, New York City.

Streptococcus Vaccine: Marketed in boxes of 6 ampoules. E. R. Squibb & Sons, New York City.

Friable Tablets of Emetine Hydrochloride, Mulford: Each tablet contains emetine hydrochloride 0.032 Gm. H. K. Mulford Company, Philadelphia, Pa.

Antirabic Vaccine: Consisting of eighteen doses, one dose is sent by mail daily. Pasteur Institute of St. Louis, St. Louis, Mo.

Typhoid Vaccine, Immunizing: Marketed in packages of three syringes and in packages of three ampoules. H. M. Alexander & Company, Marietta, Pa. (Jour. A. M. A., Nov. 28, 1914, p. 1953).

The present outbreak of foot and mouth disease among the cattle at the Union Stock Yards and also on farms in various parts of a number of states adjacent to Chicago serves to emphasize the importance of efficient pasteurization.

This disease is transmissible to man, especially to children, by means of milk, but the danger is entirely removed by pasteurization.

At the present time the disease, as far as we can learn, affects only a very small fraction of the territory supplying milk to the Chicago market. There is consequently not the slightest occasion for any popular hysteria on the subject of the milk-supply. About 82

per cent of the milk now sold in the city is pasteurized. If the public will confine its purchases of milk to that which comes from plants supplied with properly installed and properly operated pasteurizing equipment, they need not concern themselves about the danger of infection.

There is no danger of transmission by means of meat or meat products.—*Bulletin Chicago Department of Health.*

Ventilation, in a word, is simply taking good air in and letting bad air out.

Book Notices

CHILD TRAINING AS AN EXACT SCIENCE, by George W. Jacoby, M. D. With full bibliography and thorough index. 384 pages, 15 full-page illustrations. \$1.50, net; by mail, \$1.62. Funk & Wagnalls Company, Publishers, New York.

No more important subject can be the object of a book than the one Dr. Jacoby has chosen. Upon the training of the child of today depends the stability of the nation for another generation and, in considerable measure, for other generations to come.

The book was written for the instruction of the teacher, the parent, and the physician. It will be of most value to the teacher.

In the introduction the author says: "But it can be proved by convincing evidence that many of the failures of pedagogy could be avoided, many a child considered uneducable could be trained to become a useful member of society, if those who have control of its education and training, at home and in school, the parents and teacher, would earnestly endeavor to find the key to the individuality of their ward."

There can be no doubt that the physician and the pedagogue should work in closer relation than has been the custom—more particularly is this true when educating defective children, and the author points the way in which such union of effort will be most effective. The book deals largely with the psychological training of backward children.

ABDOMINAL OPERATIONS. New (3rd) edition, enlarged two volumes.

ABDOMINAL OPERATIONS. By Sir Berkeley Moynihan, M. S. (London), F. R. C. S., Leeds, England. Third edition, entirely reset and enlarged. Two octave volumes totaling 980 pages, with 371 illustrations, five in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$10.00 net; half morocco, \$13.00 net.

The work of Dr. Moynihan is so well known in this country that his text on abdominal operations needs no recommendation. The books describe in detail only their operations and methods as practiced by the author—giving in this way his personal opinions, methods and results. Only operations common to both sexes are described. No operations upon the bladder nor pelvic organs are described and none of the various hernia operations. The text is supple-

mented by numerous illustrations, the character of which are excellent, and add greatly to the value of the work. The volumes will be a valuable addition to your library of surgery.

The Saunders Company are to be congratulated upon the mechanical make-up. The volumes make a handsome showing for the publisher.

THE CANCER PROBLEM, by William Seaman Bainbridge, A. M., Sc. D., M. D., Professor of Surgery, New York Polyclinic Medical School and Hospital; Surgeon and Secretary of Committee of Scientific Research, New York Skin and Cancer Hospital; Consulting Surgeon, Manhattan State Hospital, Ward's Island; Honorary President, First International Congress for the Study of Tumors and Cancers, Heidelberg, 1906. The Macmillan Company, 66 Fifth Avenue, New York. 1914. Price, \$4 net.

The Macmillan Company has recently issued this volume by Dr. William Seaman Bainbridge on *The Cancer Problem*. No question is of more importance nor interest than this, and Dr. Bainbridge has given the last word on this malady.

The deaths from cancer among civilized peoples are estimated at half a million annually and are increasing rapidly.

The author does not claim to have solved the problem nor to have brought out some new operative procedure, but he does tell what has been done and learned, and what results treatment has effected.

The book discusses the various theories of cancer; has emphasized facts, and reviews the work and opinions of other men who have studied the cancer problem.

The book should be read by every doctor, either surgeon or internist, and by all public health lecturers. The volume contains a large bibliography, which is of great value to those who are studying the literature of cancer. We recommend it to the profession.

A MANUAL OF BACTERIOLOGY, Clinical and Applied, by R. Tanner Hewlett, M. D., F. R. C. P., D. P. H. (London), Professor of Bacteriology in the University of London; Director of the Bacteriological Department, King's College, London; Director of Pathology, Seamen's Hospital, Greenwich; Lecturer on Bacteriology, London School of Tropical Medicine. Fifth edition. C. V. Mosby, St. Louis.

A review of a text-book on bacteriology that has reached its fifth edition since 1898, seems almost unnecessary, especially when written by such an authority as Dr. Hewlett, except for the fact that much new matter has been added and the entire work has been revised.

Ample space has been given to the side-chain theory and immunity reactions and which have been extended. The newer theories on anaphylaxis are inserted. Changes and added space of considerable degree have been given to the streptococci, anthrax, tubercle, and leprosy bacilli, typhoid fever and cholera; in fact, every new matter that could be added and every revision possible to make have been made. It is a manual whose 650 odd pages show the work of an authority. The book can be strongly recommended as an up-to-date work on bacteriology.

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Original Articles

THE SOCIAL ECONOMIC ASPECT OF TUBERCULOSIS.*

M. SAHUB, M. D.,
CHICAGO, ILL.

In order to understand properly the social-economic aspect of tuberculosis and the attitude the medical profession has to take in this question, it is necessary to understand the trend of progress of medicine in general.

August Comte in his positive philosophy outlined the progress of society in his famous law of the three stages. According to this law every branch of human activity passes through the theological, metaphysical and positive stages. If in our imagination we look backwards hundreds of years and watch the evolution of medical science we will observe the above mentioned stages through which medicine passed. In the theological stage the cause of disease is a supernatural evil agent, which has to be driven out by prayer and incantation. Priests in ancient times, medicine men among the savage tribes now, sorcerers at all the dark times, are the representatives of the medical art and science of this period.

With the development of mankind the metaphysical philosophies appear, and they find their place in medicine also; spirits and humors circulating in the blood are used to explain the physiological and pathological phenomena of the human organism. The chemical school of medicine follows closely, and only with the modern development of biology, with Virchow, Pasteur, and Lister in the lead, medicine is entering into the positive or truly scientific stage of its development.

In its evolution, medicine, like all other sciences, is at the beginning comparatively simple, dealing with simple uncomplicated phenom-

ena; all diseases are due to an evil spirit, and prayer or incantations are the only means to cure them. Experience later on shows that the conception of disease and its cure is more complicated; anatomy, chemistry, materia medica, and physiology begin to be parts of a complicated system of medicine, in which the diseases begin to be classified according to their causation and symptomatology. Medicine, in other words, is entering into the scientific stage. But still the physician deals with the individual organism only. Sociological, economical, or political factors influencing the health and life of human beings are not taken at this period into consideration, and the "learned" profession stands aloof from political and social activity. Now when biology has reached such a high degree of development, when politico-economical sciences are forcing their way ahead with the enormous amount of accumulated material, the physicians begin to see causes of disease, not only as they have been seen before—in evil spirits, humors, chemical changes or bacterial agencies—all of them within the individual, but they begin to see causes outside of the individual, in society, in the present social and economic conditions. These causes being social in their origin necessitate a "social" remedy. Or in other words the members of the medical profession become not only healers of diseases of individuals, but active factors in shaping the social conditions of life. As a result preventive and sanitary medicine has been the first to force its way to the front. But that was not enough. The medical profession begins louder and louder to demand a hearing of the public in questions of diseases where the cause is social and threatens to affect the welfare of society; and it comes forward not only with new methods of treatment, new drugs or new serums, but with distinct propositions to legislatures and governments of certain social and economic changes. The last congress of neurologists and alienists in Chicago is a striking ex-

*Read before the Northwest Side Branch of the Chicago Medical Society, Oct. 2, 1914.

ample of the social activities of the medical profession. The result of their work is embodied in a set of resolutions to governors and legislatures of our states recommending legislative, social and economic measures, necessary for the prevention of certain diseases.

This trend of medicine is not yet completely grasped by the entire profession. The wise and the leaders see it clearly, some of the great mass of practitioners follow their leaders instinctively, and the majority still look upon themselves as curers of diseases of individuals only. The quicker they will fall in line and understand their social mission, the quicker society will rid itself of all those dreadful social diseases which take annually more lives than any war ever did. With this point of view in mind, I am coming to the theme of my paper tonight.

Dr. Theodore Sachs of Chicago, with his untiring energy and organizing ability, has perhaps done for Chicago more than anybody else on the question of tuberculosis. His extensive work caused him to pronounce tuberculosis the poor man's disease. Professor Osler emphatically states: "Tuberculosis is a disease of poverty." The tuberculosis exhibits which are doing so much for the education of the people illustrate the cause of tuberculosis in statistical tables and in pictures of the dwellings of the poor—of their bedrooms lacking air and sunshine, pictures of the slums, poverty and vice; and whatever the cause of tuberculosis may be, whether the tubercle bacilli, or the diminished resistance of the body, due to overwork, or lack of air in the dwellings or workshops, or to lack of proper nutrition, the underlying primary cause in the final analysis is poverty of the masses.

The economic basis of society is the working class, which produces all the necessities and comforts of life and all the wealth of society.

It is this working class that lives in the unventilated, crowded, insanitary districts and tenements of our cities. It is the workingman and his family that are underfed. It is the working class that supplies the population for the slums and vice districts, and all this is done not from choice, but from necessity; poverty is the only cause of it. Where there is no poverty, where there is plenty of sunshine in the house, where the rooms are not over-crowded, where the people have plenty and healthful food to eat,

where the children do not have to work or overwork to assist in the support of the family—there is no tuberculosis. Of course, we have rich patients with tuberculosis. But I need not stop here to explain the cause of such cases. Tuberculosis, as a rule, remains the disease of poverty.

The extermination of tuberculosis therefore is not in a medicine, serum, vaccine, or antitoxin of any kind, but in the removal of the primary cause.

While modern methods of treatment may be able to produce cures in some very few cases, and arrest the development of the disease in others, they are powerless to stop the appearance of *new* tubercular cases, as long as poverty with all its vices continues to flourish.

Let us see a few figures which will show more than words what a social structure made up of two extremes; trusts and capitalists, with an ideal of life, to accumulate as much as possible by any means, on one side, and of poverty stricken all the time or some of the time workingmen with an ideal of making a living only all the time, on the other extreme, what such a society has done on the field of tuberculosis; first to produce it, and then to prevent or alleviate the sufferings from it.

In the United States alone there are more than 150,000 deaths from tuberculosis at the average age of 35 years. At this age, according to the tables of expectancy of life, the deceased ought to have lived 32 years more. So that the real loss of life, measured in time, will be 32 years of useful work for every individual dying from consumption, or the entire loss of time will be represented by 4,800,000 years annually. If we assume a very low value for a year of human life after the age of 35 years is \$50, the real loss to the nation resulting from tuberculosis may be estimated at \$240,000,000 per annum.*

This figure is a bargain on human life; the sufferings, miseries, tears, the love of mothers, brothers, sisters of the victims of this dreadful disease are not taken into consideration.

Professor Osler calculates that there are at least $1\frac{1}{4}$ million cases of tuberculosis in the United States all the time, and this is certainly a very conservative figure. These are all more or less in the position of invalids, i. e., not able to work. But let us assume that only one-fourth of them cannot work. They must then be supported in some other way than by their own labor; either by private or public help. The wages then of this one-fourth, or of

*Huber's "Civilization and Consumption."

312,500 men and women, at the rate of \$1.50 per day, would amount to 150 million dollars a year. This represents the sum lost annually by the nation because these men and women are unable to work. If there were such a loss of money from any other cause which was preventable, there would be a continual agitation in the press and public meetings until it would be corrected. Take, for instance, the loss of \$50,000,000 annually paid to foreign ship owners, or in other words a loss of this amount to the American shipowners. A cry was raised of the enormous loss the American nation sustains yearly in the shipping industry, and it caused a subsidy bill to be considered by the congress, calling for an annual expenditure by the federal government of \$9,000,000. Yet we have in tuberculosis an annual loss of three times as much in money, and in pain and suffering beyond description, but we do not hear of millions being given by the federal government for fighting this dreadful enemy of society.

Now, so far as our own state of Illinois is concerned: In 1903, 7,000 persons died of tuberculosis; half of them between the ages of 20 and 50 years. The estimated loss to Illinois from this disease alone was \$36,000,000. The medical authorities of our state, as in other states, have found that more deaths are due to tuberculosis than to typhoid fever, scarlet fever, diphtheria, measles, all forms of bronchitis, influenza and smallpox taken together. And with all that what have our federal, state, or municipal governments done for the war on tuberculosis? To overcome typhoid fever only, Chicago spent \$40,000,000 for the drainage canal to purify our water supply; and, as I understand, more millions will have to be spent. But for tuberculosis you don't hear of millions appropriated. Is it not clear to any common sense person, that the millions are more necessary for tuberculosis than for any other disease? Where, then, is the reason for our legislatures lagging behind in taking adequate measures for such an important national calamity? The reason is in the class structure of our society, based on private ownership of capital and of all the means of production and distribution; in living and working for profit and not for social welfare, and in general to the lack of social and religious ideals.

Take the illustrations I mentioned; the shipping subsidy and the drainage canal. The ship-

owners or the shipping trust are not workingmen depending on a daily job, and suffer only from lack of larger profits, not from lack of daily bread, and they are getting millions to subsidize them. Tuberculosis on the other hand is a disease of poverty, due to uncertain employment of the workingmen. Now as to the water, it must be drunk by rich and poor alike, while tuberculosis selects the poor. If the poor working people die out from the white plague, others take their places. The profits of the capitalists do not suffer from a tubercular death rate. It is true the capitalists support all the charity institutions, which minister greatly to direct and indirect victims of consumption. But those donations figure on their books as other expenses of running the business, and are merely added to the cost of the product, for which the workingman pays. All of us know that many a time when Mr. Rockefeller donated a million to the University of Chicago, kerosene went up in price a fraction of a cent. And when the beef trust had to pay a \$2,000,000 fine, beef has risen two cents a pound the next day. Is it not clear that in the long run the charitable millions are supplied by the working class? The rich man in the process of social evolution has merely made himself the agent distributing part of the workingmen's money, and appropriating the glory for giving it.

Then we have to consider not only the tuberculosis death rate, but also the condition of the dependent members of the family, who suffer from it. We cannot also overlook the social problems caused, and their relation to this disease; as child labor, sweat-shops, prisons, etc. Time will not allow entering into all these questions. Suffice it to say it will only make the problem still graver, and bring us into realms of a purely social and economic character. But from what I said it is clear that a society of rich thriving on the poor cannot *exterminate* tuberculosis.

Now let me cite you some other instances showing how business interests stand in the way not only of exterminating tuberculosis, but even of improving the conditions of tubercular sufferers, and of diminishing the spread of this disease. I will mention only the Goodsell-Bedell bill of New York state, which for years made it impossible to establish a sanitarium for consumptives in the state of New York. Here is a quotation from the New York Times: "It was one of the

most disastrous measures which have received legislative and executive sanction. The effect of this law is to make it impossible for any city in the state, or any fraternal order, charitable society, or philanthropic individual, to establish a hospital or similar institution for consumptives outside the city limits, except under practically prohibitive conditions."

The New York Academy of Medicine vigorously protested against this bill, and petitioned the governor not to sign it. Here is the resolution of the New York Academy of Medicine: "Resolved, that the New York Academy of Medicine deplores the passage of the above bill, and urgently requests His Excellency, the Governor, to withhold his signature to the act, which, in case it becomes a law, would involve the loss of thousands of lives and increase the spread of tuberculosis within the crowded districts of our cities and towns, and would have to be considered an act of the greatest injustice and inhumanity." But all in vain. Behind the bill stood three New York multimillionaires, who, as is the case everywhere, had the legislature in the palm of their hands, and the Governor was their creature, and no appeal of the consumptive sufferers or of men of science could go against the phthisiophobia of the powerful interests, whose only arguments was their own will combined with property rights.

When we come to preventive measures inaugurated by municipalities in the shape of sanitary reforms, or regulations for the tenement house buildings and sanitation ordinances, we see again that private profit is in the way. This is splendidly illustrated by the work of the Trinity Church corporation of New York city, which owns several blocks of tenements. "For 15 years it opposed sanitary reforms in tenements. Their tenements in the lower West Side of the city were the worst places for tuberculosis—the lung blocks, and contained also the worst saloons and sporting houses. In the course of time public opinion was aroused against this corporation—not because there were no worse tenements, but because of its church connections,—and an appeal was made to the law. All the force of its great wealth, its religious authority and its tremendous social prestige were used to fight the sanitary reforms in the tenements. Although in the end they had to bring their tenements to a better condition, the church nevertheless suc-

ceeded in obtaining court decisions which have crippled every new attempt at tenement reform." (Huber.)

Mr. S. H. Adams in his article, "Tuberculosis, the Real Race Suicide," finds the tenements of the University of Chicago in the slum regions on the south side not without sin against sanitation. He says:

To the passer-by they are distinguishable by being a little more out of repair than their neighbors. A few are so bad that even the hardened tenement dwellers shun them, and in these teeming thoroughfares they stand silent and unpeopled. The average Chicago university tenement may not be the worst in the city, but it is sufficiently bad to furnish plenty of tuberculosis subjects for the Rockefeller fund experiments. Nor is there bright prospects of improvement, for the University of Chicago operates its own tenements, and it is not what would be called a good agent. Its replies to repeated appeals for repairs and better sanitation constitute an interesting study in the science of evasion and noncommitment. Very possibly Mr. Rockefeller knows nothing of the tenement branch of the Chicago University. But members of the faculty, with whom I have talked, know of it and are not proud of it.

Gilbert Slater in his book, "The Making of Modern England," describes the pernicious influence of the financial interests on sanitary legislation in England. On page 168 he says:

The act (constituting the General Board of Health) was only temporary. Unless renewed, the board was to cease to exist at the expiration of five years. This was a fatal weakness, because it encouraged all vested interests, threatened by the advance of sanitation (and it is remarkable how many of these interests there were) to obstruct and resist the board, and it also deprived the officials of any reasonable hope of advance and security for the permanency of their appointments.

Lord Shaftesbury and Sir Edwin Chadwick, the first English Commissioners of Health, have the same complaints against the powerful financial interests, whose influence was felt from the lowest official to the prime minister of England.

In his diary for Nov. 17, 1852, Lord Shaftesbury writes: "I am grieved to learn that not only nothing was done by the government (on the question of sanitation), but that the ministers will take good care that nothing shall be done by any one else. The Board of Health is to be destroyed; its sin is its unpardonable activity."

The medical profession must be given credit for all that has been done on the question of treatment and prevention of tuberculosis and

for all that it is doing for the education of the people on that subject. There is no doubt that the death rate from tuberculosis has been diminished for the last decade, and may or may not (as last year has shown), continue to diminish, but the purely medical and sanitary efforts will never go to the root of the evil, to the primary cause, poverty of the masses, which increases parallel with the growth of concentrated capital.

And here is the point where the physician to do his duty enters the realm of politics, which is nothing else than the practical application of sociological and politico-economical sciences. We are weak in this branch of social activity. Lack of organization is ascribed by many as the cause; but this is a false interpretation. The real cause is that the rank and file of the profession did not grasp yet completely the field of social-economies into which evolution of society and of medical science is leading them.

It is therefore the duty of the physician to study social-economical problems and through political action become an active force in social life by applying his medical and sociological knowledge to the solution of questions in which both these branches are interwoven, as the questions of exterminating tuberculosis or typhoid fever or other diseases of a social origin. The Pirogoff Medical Society of Russia gives the most striking example of physicians acting on the social-economic field. In 1905 the question of treatment of typhoid fever among the peasants came up for discussion. The result was a unanimous decision to petition the government of the Czar to give more land to the peasants. One who knows the terrible poverty of the Russian peasants, of which only one-third are able to eat pure unadulterated bread during the entire year, will appreciate the decision of the Pirogoff Medical Society.

Such active, intelligent work on the political and social fields are important for the physicians, not only to enable them to better fight the diseases of social origin, but for their own self-preservation.

With the increase of poverty the average income of a physician, taking in consideration the present standard of life, is diminishing. The bulk of practitioners depend on the masses. If they are poor the physician cannot get out the value of his work, and the profession is getting thus gradually pauperized. Take the German

Kranken-Kassen, or the English industrial insurance, where the physician's fee is reduced to a mere pittance. A skilled artisan gets more than a physician under the above mentioned conditions. Similar legislation is under consideration in Springfield, and in the next legislature we can expect enactment of bills of a nature similar to the English industrial insurance or German Kranken-Kassen. Such legislature will be hard or impossible to fight, because it is based on a quasi-humane, philanthropic principle; help to the poor workingmen. The poor masses, which make up the majority of voters, will morally support such legislation, not understanding that by such action they establish firmer the principle of poverty. Cheap soup-kitchens, cheap municipal lodgings, cheap professional services are not a cure for poverty. They make it only more chronic. The real cure is to put the workingmen on a basis of economical prosperity and independence. Then and then only will the workingmen be able to live in spacious, airy, well ventilated rooms; then they will have plenty of healthful food for themselves and their families; then their children will not have to work and overwork in factories, mills, and mines; then the workingmen will be able to pay decent fees for professional services, and then poverty will be no more the cause of tuberculosis.

RECENT ADVANCES IN THE DIAGNOSIS AND TREATMENT OF PULMONARY TUBERCULOSIS.*

EUGENE J. O'NEILL, M. D.
CHICAGO.

As the title of my paper indicates, it is my intention to deal with various selected topics in the recognition and care of pulmonary tuberculosis without attempting any full and proportioned essay on the subject.

It is trite to say that tuberculosis is still the greatest single foe of man. The most authoritative statistics at hand still place its yearly toll of men and women, for the most part in the prime of life, at about 200,000 for the nation and over 3,500 for this city. If this huge plague which leech-like lurks in our midst is to be successfully combated, those especially interested are as one in declaring that pulmonary tuber-

*Read at meeting of Englewood Branch, Oct. 6, 1914.

culosis must be recognized earlier than it is as a rule at present. There appears to be too much timidity on the part of physicians in making an early diagnosis. If we are to wait till there exists a profound anemia and pronounced loss of weight and until the sputum teems with bacilli, we are in most cases allowing damage to proceed to a point where very little can be done toward returning to society a happy and useful member. Not only this, but we allow many of those in the immediate environment of the patient, especially children, to develop foci which either then or subsequently may lead to active disease. Authorities tell us that too many cases of early tuberculosis are masked under the diagnosis of a "run down condition," "catarrh," "chronic bronchitis," "lagrippe," "pneumonia" and "pleurisy."

Pulmonary tuberculosis is rather protean in its primary manifestations but in nearly all cases more or less of the following symptoms are present: An afternoon malaise and slight fever, gradual loss of weight and strength, anemia, fast pulse, slight hacking cough, pain in the chest, hoarseness, hemoptysis and often a syndrome that fits our conception of neurasthenia.

A patient with a quota of the above symptoms should strongly suggest to us the probability of tuberculosis and all diagnostic aids should be applied to definitely establish the cause. If, on physical examination, we outline the apices both anteriorly and posteriorly according to the field of Kroenig, and find a portion of the upper lobe involved (for tuberculosis commences here in most cases), as shown by muscle spasm, slight dullness, impaired respiration, generally in shape of prolonged expiration or brachovesicular breathing, increased transmission of whispered sounds, even though there be no rales, we can be morally certain, if the clinical symptoms fit, that we are dealing with an incipient infiltration. It should be emphasized that the first findings in a great many cases are prominent posteriorly rather than anteriorly and often just below rather than above the clavicle. It should not be forgotten, however, that there is a variable element in the normal findings between the right and left apex which only experience can teach, but such difference never reaches the pronounced changes detailed above.

Until recently the finding of tubercle bacilli

was considered the sole criterion for the absolute diagnosis of tuberculosis. Today we have in tuberculin an aid that makes possible earlier recognition. For forty-eight hours the suspected patient, preferably in bed, takes or has an attendant take his pulse and temperature at four-hour intervals. The dubious spot in the lungs is carefully auscultated and findings noted for comparison with changes presenting after the injection of tuberculin. From 0.5 to 4. milligrams of O. T. are given subcutaneously, depending on the age and robustness of the patient. In children below the age of six the skin reactions of Von Pirquet or Moro are generally used instead of the subcutaneous test. Failure to react to 10 milligrams of O. T. speaks absence of tuberculous infection. However, in certain very active advanced cases where the resistance to the spread of infection is very low, and in certain very mild infections of slight extent, where the virulence is not enough to call forth a large number of antibodies, no reaction may occur; but all these represent a negligible number of cases. While there may be this percentage of error on the negative side, a positive reaction is always specific for tuberculosis. A diagnostic dose of tuberculin should give a general, a local and a focal reaction. When the patient complains of a decided malaise and there is a rise of temperature and acceleration of pulse usually beyond ten beats in the following eight to thirty-six hours, a reaction has occurred and we can say that somewhere in the body there exists tuberculosis. The focus in the lungs is now examined keeping in mind the previous findings before injection. If there are now rales or the previous rales are increased and in general there is evidence of an activation at the point, often shown clinically by increased cough and perhaps slight dyspnea, we can be sure the focus is tuberculous.

Another aid in early diagnosis of growing importance is the preliminary treatment of sputum with antiformine. This enables the spreading out and staining on an ordinary slide of all the bacilli which may be present in five cc of sputum. The technique, of which there are many unimportant modifications, is as follows: Ten cc of sputum are taken and mixed with an equal quantity of 50 per cent antiformine. The mixture is now brought to a boil and if the antiformine is potent all the mucus is dissolved and

a clear lumpless solution results. To 10 cc of this mixture is now added 1.5 cc of chloroform reagent which consists of one part chloroform and 9 parts of 95 per cent alcohol. After shaking the mixture it is rapidly centrifuged for three to five minutes. This leaves a compact layer of sediment which is spread out on a slide, and, after a little albumin fixative or original sputum is added, stained in the usual manner.

For a time it was thought that the sputum albumin test, introduced from France, would definitely eliminate the possibility of tuberculosis from clinical cases of bronchitis and asthma and thus take a prominent place in differential diagnosis. If the sputum failed to show an albumin reaction it was thought that tuberculosis *ipso facto* could be excluded. If positive the test would mean no more than that the lung parenchyma had been invaded by some disease process such as pneumonia, tuberculosis or abscess without defining which. Further experimentation has greatly limited the utility of the test and practically thrown it into discard. Many undoubted cases of bronchitis were found to give a positive test and negative reactions were obtained in many bacilli proved cases of tuberculosis. The test is simple. To 5 cc of sputum 5 cc of distilled water and 1 cc of glacial acetic acid are added. This is subjected to several agitations during the course of twenty minutes. It is then filtered and the ferrocyanide or one of the other popular albumin tests performed. The test, as was said, is of little value and is only mentioned that its present status may be placed before you.

The urochromogen test of Weisz is a test somewhat similar to the diazo reaction. It represents a catabolic reaction of the urine and in its application to tuberculosis offers a better indicator of the progress of the disease than fever and other clinical symptoms which the patient manifests. A repeatedly positive urochromogen reaction is interpreted as a bad omen. A constantly negative reaction means a good prognosis. To perform the test two small test tubes are taken, one of which is to be used as a control. Into each place one ccc of urine and 2 cc of distilled water. To one of the tubes add three drops of a 1 to 1000 potassium permanganate solution and compare with the control. The appearance of the faintest yellow is inter-

preted as a positive urochromogen reaction. Although much work must yet be done to place beyond denial its prognostic value, the reports of experiments so far conducted demonstrate it as possessed of immense value.

When roentgenology is considered in relation to pulmonary tuberculosis we find it only of auxiliary importance. In children it may bring out clearly the bronchial glands about the hilus of the lung. Areas of increased density when read in correlation with physical findings predicate calcified foci. In the demonstration of advanced findings, of fluid, cardiac displacement and as a guide in the induction of pneumothorax it is of preeminent importance.

In the field of therapeutics the two things which loom largest are the administration of tuberculin and the production of pneumothorax. While all students of tuberculosis have not been entirely won over to the use of tuberculin in pulmonary localizations, their number has so diminished that today they constitute a very small minority. It is claimed for tuberculin by conservative users that it hastens the arrest of the disease, that, except in the very active cases, it produces an almost immediate betterment of symptoms, and that it tends to prevent subsequent lapses by the patient owing to the production of a high resistance. The statistics from such men as Sahli, Trudeau and Pottenger are convincingly eloquent. Some authorities claim that even in active advanced cases its administration in suitable doses, while it does not prevent an ultimate fatal result, nevertheless adds to the patient's fighting powers. Whatever we may think of it in active advanced cases, there can be no doubt but what it is indicated in incipient lesions, in subsiding chronic ulcerative and fibroid cases, as far as the lungs are concerned.

When we come to the actual administration of tuberculin two schools of thought address us for recognition. One championed by Wright holds to the administration of gradually increasing small doses for the purpose of increasing the patient's opsonic index. The other school is more bold. Its guide is the patient himself and its purpose the production of a mild but not excessive inflammation about the tuberculous focus. If the patient's cough is aggravated or he suffers appreciably from dyspnea, nervousness

or other signs of marked general reaction, if there is a marked local reaction at the site of injection, or if on physical examination there is a marked activation of the focus, the dose is not increased for the time being. Often devotees of this system drop back and rapidly increase up to the same point again, at which time the patient will usually be able to stand further augmentation. According to the extent and activity of the lesion the time of appearance of the first intolerable dose will vary; and according to the length of time it takes the signs of reaction to subside the interval between injections will vary. For instance, a dose of tuberculin is never administered before the local reaction as manifested by redness and nodularity has cleared up and this time is practically never longer than ten days or two weeks. The advocates of the second school claim that any effective healing about a tuberculous focus is accomplished only by the production of an inflammation immediately about the focus. Small doses remote from the capability of producing this disturbance are of little avail till they reach the point where a mild tissue inflammation is effected. Notwithstanding the claims of this school the words of Sahli should be carefully considered on this point: "The production of local inflammatory reaction by tuberculin is risky and uncertain, and I am convinced that it is far wiser to avoid, as far as possible, all such local reactions by careful regulation of the tuberculin dose."

According to method of preparation some of the tuberculins contain the intracellular, others the extracellular products of the tubercle bacilli, whilst others again, like the watery extract of Von Ruck, are a combination of both. Hence it is very common and advisable to give the patient the benefit of both. A large number prefer to commence with O. T. and after a time replace it with B. F. of the intracellular type.

Occasionally there occurs after the administration of tuberculin a severe syndrome similar to that which is known as serum disease. Experienced users of tuberculin seldom see this hypersensitiveness. It is found for the most part where small doses are given at rather long intervals. When this reaction occurs tuberculin should be stopped entirely for about a month and then recommenced with larger increases in the individual doses and given at intervals of

not more than ten days. If this does not accomplish results a new preparation, for instance the bacillus emulsion, should be substituted.

I cannot leave the subject of tuberculin without referring to the bright rays of hope emanating from the brilliant work of Webb and Williams of Colorado City. By means of the injection of living tubercle bacilli of definite number and attenuation they are able to produce a marked degree of resistance in animals and humans. For instance, they can keep in confinement monkeys long past the time when ordinarily they succumb to tuberculosis. Some humans have been injected and they do not seem to contract tuberculosis when exposed to conditions which are ripe for producing it. Hence the day seems not far distant when the immunity of humanity may be artificially established on the basis of this work.

The induction of pneumothorax, an operation brought prominently forward by Forlanini, Murphy and Brauer, represents another advance of undoubted value. It rests upon the well-known principle that an organ at rest will heal more quickly and completely than if in action, as witness tuberculosis of the spine or knee. To compress the lung nitrogen, the least absorbable and noxious of our gases is slowly introduced into the pleural cavity. Compression should be maintained for from six months to over a year by injections which are separated by longer intervals as they are repeated. Even after compression has been present for a long time, practically the full degree of expansion will return. Care should be taken that the entering needle penetrates no farther than the pleural space and that there is present a negative pressure with oscillations previous to the inlet of gas. The first injection should not be allowed to reach a positive pressure but the degree may be gradually raised in succeeding administrations. For safety in this procedure an attached manometer is indispensable. A pleural effusion is reported to occur in the most careful hands in about 10 per cent of cases, but this should cause no alarm as at the present time there is a strong movement among clinicians to leave undisturbed pleural effusions unless there is marked embarrassment of breathing or purulency is suspected through chills, very high temperature and marked toxic symptoms.

All writers are not in accord in particularizing the indications of artificial pneumothorax. Murphy considers it especially applicable to apical or monolobar lesions in an early stage when no extensive unyielding adhesions are present and compression is possible without much difficulty. He does not consider it practicable in the more advanced cases when the amount of fibrosis is extensive. Many cases of threatening hemorrhage have been successfully stopped by pneumothorax. However, not a few consider the operation too radical and severe for incipient cases, but nevertheless there seems to be an increased movement toward its adoption.

In a few instances a condition known as gas embolism or pleural shock takes place, characterized by a sudden pallor, convulsions and perhaps a temporary paralysis. This seems to be due to faulty technique, in particular to the lack of local anesthetic or to the occurrence of too high a positive pressure, which may force air into the blood stream.

A word should be said about tuberculous gravidae who are allowed to proceed to labor. They are a source of widespread infection which seems to be not fully appreciated. As is well known, there is such a marked weakening in their resistance following labor that one-third of tuberculous mothers die within one year thereafter. Many closed cases become open. On account of the large proximity of children and attendants the cases of infection are many. Mothers should not be discharged till all active tuberculous symptoms have subsided. If the patient be at home instruction should be given the family as to prophylaxis. It is estimated that the 75 to 90 per cent of cases of tuberculosis lighting up in early adult life are rerudescences of lesions contracted in childhood. If this is true the need of better care of tuberculous mothers is most urgent.

While it is quite obvious that tuberculosis strikes both where wealth and poverty abide, it inflicts its greatest ravages on the poorer proportion of our population. It takes a long time for a patient to return again to society as a working unit, or if return be impossible, he needs care on a large scale for himself and family. It is at once evident that the community must take hold to care for such cases and secondarily by means of public education, by examination of contacts, by urging the

periodic inspection of workers in their shops and children in their schools and by asking that places of living and employment be kept sanitary and well ventilated to endeavor to stay the onslaughts of the White Plague as it marches through the ranks of our civilization, leaving in its path wide trails of financial paralysis, physical disability and soul disaster.

This need in Chicago has been met by the establishment of the Municipal Tuberculosis Sanitarium. It maintains a staff of about 35 physicians, 55 nurses and 10 examining centers situated in the various congested districts. Cases, especially open ones of tuberculosis, are sought out, contacts examined and information imparted to prevent further spread of the disease in the home. If positive cases are found they are treated at the dispensary or at sanatoria as the circumstances warrant. In a short time a 900-bed institution will be open for tuberculous cases and maintained by the city of Chicago. Through associated agencies such as the United Charities, the County Agent, Elizabeth McCormick Memorial Fund and the Chicago Tuberculosis Institute, much needful assistance is given in the shape of food, tents and the establishment of open window school rooms. The Municipal Tuberculosis Sanitarium aims to work in co-operation with private physicians and solicits their aid to the end that the arch foe of mankind may be effectively checked.

6429 So. Halsted Street.

PREVAILING MISTAKES IN THE ANTI-TUBERCULOSIS MOVEMENT.*

GEORGE THOMAS PALMER, M. D.

SPRINGFIELD, ILLINOIS.

President of the Illinois State Association for the Prevention of Tuberculosis; Director of the Springfield Open Air Colony.

We have now come to a place in the crusade against tuberculosis where those interested in the work may well take stock of past accomplishment; where we may very properly raise the question as to whether the lines we are pursuing are the ones which will bring us most directly to the solution of our enormous problem.

Certainly enough has been accomplished to repay those who have given their thought, their

*Read before the section on Public Health and Hygiene of the Illinois State Medical Society at Decatur, May, 1914.

labor and their money to the fight; enough has been accomplished to warrant much greater and more general effort in the future.

Vaughan declares that, since the discovery of the tubercle bacillus, in 1882, tuberculosis has decreased 54 per cent, while the National Association for the Prevention of Tuberculosis holds that the decrease during the decade ending 1910 was 18.7 per cent.

Still, experience has demonstrated that many of our methods are faulty. If we are to attain the maximum of success there must be a radical revision of the program.

For generations pulmonary tuberculosis has been a dead subject. The attitude of the rank and file of the medical profession has been and still is exceedingly pessimistic about it. And this pessimism and hopelessness have led to a peculiar neglect of the disease not only among active practitioners, but in the schools of medical instruction. The physician who is up to the minute in his information relative to typhoid fever, appendicitis or leukemia, is often peculiarly lacking in the knowledge of first principles of the diagnosis and treatment of tuberculosis.

Within the past few years, the subject of tuberculosis has been tempered with more optimism. The results of proper treatment in cases diagnosed early have been encouraging in the extreme. Yet, so far, this optimistic tendency has not succeeded in penetrating the general apathy of the profession in regard to this particular disease. By the vast majority of successful physicians, tuberculosis is still regarded as a field quite unpromising and, hence, signally uninteresting.

The awakening of the spirit of cheerfulness and enthusiasm in the field of tuberculosis is one of the spectacular pages of medical history. In salutary results, it promises as much in the saving of human life as the development of aseptic surgery. It is not surprising that this suddenly awakened enthusiasm should have carried us into some unwise actions and some indiscretions. These have had their effect; but the warfare against tuberculosis has but begun and there is ample time for consideration and readjustment.

The pioneers in the anti-tuberculosis movement laid great stress upon the infectiousness of the disease. With a fervor which is commendable, the early educational campaigns car-

ried this phase of the subject far beyond the bounds of reason. Conservative physicians were swept quite off their feet and the pest house was regarded as preferable to the tuberculosis sanatorium as a place of safe residence. This extreme view is now generally abandoned, but the tuberculous patient is still a most unwelcome visitor to the reception rooms of many doctors.

But the deplorable results of this extreme teaching are being visited to-day upon the already unfortunate victims of the disease. In his work, his play and in his every-day life, the consumptive is still being made an outcast. Through unreasoning fear, he is dropped from the payrolls when he needs his pay most. It is a matter of the utmost difficulty for him to secure employment. The man who is so fortunate as to have an early diagnosis, is shunned by his perhaps equally infected companions.

If we recognize that tuberculous infection is almost universal; if we realize that the borderline between tuberculous infection and tuberculous disease is at times so delicate and evasive as to baffle the most accurate diagnostic skill; we must see the tragic absurdity of our present phthisiophobia and the necessity for a radical readjustment of our views.

If the pioneers descended to the very depths of despond when they dealt with the infectiousness of tuberculosis, they rose to glittering and unwarranted heights when they preached its curability. Without consideration for the disappointment which must follow such doctrines, the cure of tuberculosis was pictured as alluringly easy. A cow, a few hens and an out-of-door sleeping porch were the simple means by which the disease was to be vanquished.

To be able to announce that tuberculosis is a curable disease was a wonderful thing; but we were not content with that. We became unreasonably optimistic. We forgot that we were dealing with one of the most serious of all diseases and preached a sort of slipshod "back-to-nature" program that could end in nothing but failure and disappointment.

We forgot that rest is as important as fresh air; that good nursing is as essential as food. Thousands of unfortunates were urged to "Go west and rough it" or to "get out of doors and exercise."

Such advice brought disappointment and lack of confidence; and such disappointment brought prosperity to the charlatan and patent medicine man.

Tuberculosis is a social problem as well as a medical problem. Without the social worker and the layman we never should have progressed as far as we have. The essential truths of the prevention and cure of the disease must be carried into every home, into every school and into every factory before we can win a genuine victory. This educational work can be carried on perhaps more effectively by the nurse and the layman social worker endowed with the peculiar gifts essential to popular educational work.

But the lay worker and the nurse must look to the medical profession for the correct showing of facts, and I am impressed that the great mistake in the campaign so far has been in not impressing the physicians of the nation with their responsibility in this medical-social work.

True, physicians of the highest class have engaged and do engage in the anti-tuberculosis movement; but the number actually interested or awake to the true aims and purposes of the work is singularly small.

In some way this must be readjusted. The medical profession must become an active force. They must be enlisted in the movement and must be induced to work along a definite and coordinated plan.

On account of the previous apathy in regard to the subject, accurate, early diagnosis of tuberculosis is a rare art. Detection of the disease in its incipency is unusual and what is most astonishing is that even now the diagnosis of early tuberculosis is neglected in many excellent medical schools.

The large group of cases cited by Dr. E. A. Gray of tuberculous patients who had each passed through the hands of several physicians with the disease unrecognized, is depressingly significant.

On account of this same pessimism, perhaps, the lack of interest in the relative value of climate in the treatment of tuberculosis persists. Without entering upon a discussion of this unsettled subject, it must be admitted that climate is of secondary importance as compared to proper care, nursing and medical supervision and that consigning all classes of vague and indefinite cases to the "west or southwest," without provi-

sion for proper sanatorium or medical care is as unscientific as it is unsuccessful in results.

Even if it were admitted that one climate has definite advantages over another; even if we waive the signal disadvantages of sending the sick man far way from home with the accompanying homesickness, financial burden and hardship, it must be admitted that an encouragingly large number of persons are restored to health by sanatorium care in Illinois. And, we must recognize that for certain social and economic reasons wholesale exportation of tuberculous patients is as impracticable as it is unnecessary.

Hence, our educational campaign, has been directed toward securing public sanatoria in Illinois, such as are in successful operation in neighboring states. Whether they should be state sanatoria or county sanatoria has been the center of absorbing controversy; whether there shall be any public sanatoria in Illinois seems the more important question.

In 1913 there were considerably over 6,000 deaths from tuberculosis in the state, giving an estimated tuberculous population of 60,000. Aside from Cook County there is no public provision for the tuberculous in the state. The total capacity of the private sanatoria—some operated almost at cost—is 350 beds. And the astonishing and significant fact is that frequently many of these beds are vacant.

Since the passage of the Glackin Law, several communities have voted to establish sanatoria. None except the Chicago Municipal Sanitarium has materialized.

This would indicate that we have gone forth urging the establishment of sanatoria before we have educated the people as to the crying need for sanatorium treatment. Pitifully inadequate as they are, Illinois is not yet utilizing the sanatorium facilities which private philanthropy has provided.

Briefly, the program of the future must embrace these changes:

1. A saner and less hysterical conception of the infectiousness of tuberculosis.
2. A more conservative attitude toward the easy curability of the disease.
3. A general recognition, both by physicians and laymen of the necessity of early diagnosis and the difficulty of early diagnosis.

4. A sounder appreciation of the advantages and the disadvantages of the "quest for ideal climate."

5. A broader knowledge of the successful treatment of the disease in Illinois.

6. A recognition of the need of sanatorium care as an educational as well as a curative agency.

And above all the realization of the part which the medical profession must play, not only in giving the scientific truth as the basis for the movement, but in educating their own following and the people of their communities as to the importance of these essential things.

THE RELATION OF TUBERCULAR INFECTIONS TO GYNECOLOGICAL AFFECTIONS.*

A. J. BUTNER.

HARRISBURG, ILL.

The subject of this paper was suggested to me or was rather thrust upon my inexperienced observation by recurring diagnostic errors which might have been as easily omitted as they were thoughtlessly committed. And by permission of my associate, to whom I shall have occasion to refer later, I desire to enter jointly for ourselves a plea of guilty; believing, however, that ours are not individual, but are common errors, too frequently indulged in by the busy doctor.

The reference of guilt to which we here plead is that of mistaking a symptom for a disease and treating that symptom as a pathological entity instead of recognizing it as only a part of a morbid whole. In this light I shall presently attempt to speak of the relations of tubercular infections to gynecological affections. The conditions just referred to I believe to be due, not to our ignorance of scientific investigation, but to conclusions formed from too hasty examinations or in some extreme cases from the impromptu statement of the patient herself that she is suffering from a malady which she chooses to designate as female disease and desires our attention along a certain well defined line which she or her relatives do not hesitate to outline and which we as unhesitatingly attempt to treat.

But before proceeding permit me to state that

I do not use the term female disease with any definite or scientific meaning. In fact, I am not aware of it if it has any such meaning at all, although it is often so used by the laity. But this I do know, as many of you probably do from your experience in life insurance examinations, that when the cause of death of a wife, mother or other close female relative is given by the applicant for insurance as, just female disease, unqualified by cancer, tumor, miscarriage, blood-poisoning or other such term equally familiar to the laity, close questioning will many times elicit a definite history of tuberculosis.

So often do I find this to be true that I regard the term as suspiciously synonymous with tuberculosis in such cases until otherwise elucidated. And, pardon me if I err, I am beginning to look with suspicion on all gynecologic cases presenting between the expected ages of puberty and the beginning of the climacteric as having a tubercular contingency, without a definite history or findings to the contrary. Especially do I feel my apprehensions well taken in cases where the morbid physiology overshadows the morbid anatomical findings and in attempting to treat such conditions I often find myself suddenly brought face to face with the fact that I am no longer regarding a gynecological disease but a gynecological symptom of a constitutional disease,—the etiology or pathology of which I have little or no definite idea.

The relation that tuberculosis bears to the proper functioning of any organ or system of the body is not always a comprehensive one; especially is this true of the generative system of the female. Although we have long since admitted the toxin theory as a causative factor in much of the gastro-intestinal disturbances of tuberculosis such as anorexia, constipation, diarrhea, nausea, vomiting and abdominal pain, we have stopped short of the possibility of applying the same theory in explaining as equally plausible disturbances in function of the female reproductive system such as, delayed, retarded, and irregular menstruation,—scanty, suppressed, and continued flow or painful periods with undue pelvic discomfort and backaches that become chronic, continuous and intermenstrual.

The analogy here drawn I think is apparent and the references are made being fully aware that many and diverse other causes may be and are chronicled as acceptable theories for these

*Read before the Southern Illinois Medical Association Nov. 5, 1914.

pathological symptoms, but it is only fair to state that the frequency with which they do occur in known tuberculous women is sufficient to warrant a thorough investigation by history and physical examination, especially of the respiratory and lymphatic systems of all gynecologic cases presenting between the expected ages of puberty and the climacteric, before assigning them to other realms of etiology. I may further add that a blood examination and a cutaneous tuberculin test with a blood pressure reading will not only facilitate clearing many obscurities in making a proper etiological arrangement of such symptoms but is often imperative in establishing the relation between the symptom observed and the morbid condition of which that symptom is only a part.

As has been previously stated, the toxin theory is generally accepted as plausible in explaining the gastro-intestinal disturbances of tuberculous patients such as anorexia, etc., but the absent, delayed and scanty menstruation of the pubescent tuberculous girl is as generally attributed to a conservative act of nature which is in our opinion to say the least empirical thinking if not an assumption entirely void of scientific truth. For if nature be such a strict conservator of energy to deny womanhood to the tuberculous pubescent at the small cost of the catamenia she certainly would not be so neglectful of the ruinous waste in the process of digestion and assimilation in the same subject.

Hence we can see no objection in, and we think good reason for assuming that the menarche of the tuberculous girl is delayed or wanting not because of an economical anabolism or conservatism of nature, but rather from a katabolic toxin being elaborated by the growth of the tubercular bacilli having a selective action in some unknown way over menstruation, probably by the influence of the toxin on the internal secretion of the ovary, which in our opinion is the most acceptable theory yet offered for the explanation of the catamenia.

We do not desire here to offer a thesis on the cause and effect of menstruation and ovulation, but only to call your attention to the marked contrast in development between the non-tubercular pubescent and the tubercular girl, who has arrived at or past the expected age of puberty.

On the one hand we see a sudden and wonderful transformation, both physical and psychical,

by some internal agency or power previously unknown to the physical economy of that individual. The pelvis enlarges, the limbs round out and the angularity of the body is replaced by graceful curves. The general carriage and manner of the girl rapidly approach a state wholly feminine. While on the other hand we see her counterpart lagging through her teens with a form and physique that is sorrowfully childish if not neuter in character.

She has halted at the parting of the ways of the sexes. She has been deprived of that internal stimulus elaborated by the second function of the ovary or had it neutralized by the toxin of her enslaver, the tubercle bacillus, which is attempting to dispossess her of her sexual heritage.

This is the picture of the tubercular pubescent most commonly seen, but is not by any means exclusive if persistently and systematically sought for. I have more than once been consulted by mothers for their daughters entering puberty with profuse and continued menstruation for one or two weeks with no other indication of ill health until diligently sought for by a careful and rigid examination. So frequently in such cases have I found evidence of concealed tubercular foci that I have ceased to treat the gynecological symptom as coincident to a tubercular infection elsewhere but as part of and as corroborating that morbid whole. Hence I have long since despaired of compromising such symptoms with the theory of conservatism of nature in explaining delayed, suppressed and scanty menstruation in tubercular patients as well as the theory of vicarious menstruation which I believe to have root in tuberculous hemoptysis with suppression of menses for the same reason.

Nor is it only in the menarche that we may find the subtle touch of this mischief worker, but continuously on through the menacme up to the menopause does he beguile us in varied and divers ways so ingeniously concealed that the most careful of us may fall victim to his intrigues. In fact so difficult are the gynecologic symptoms arising from tuberculosis during the menacme or child-bearing period of woman to separate from other conditions depended upon marital relations such as pregnancy and the consequence incidental thereto, venereal and other infections, that for the sake of brevity I shall devote the remainder of this paper to case readings of my own and associates who have been liberal enough to fur-

nish and for which I feel deeply indebted. The cases selected are not the unusual but the common ones and are chosen in accordance with the subject of this paper. In the report of these cases no chronological arrangement will be observed, but only symptoms cited with results and conclusions therefrom.

Case 1. The first case that I will relate came under my observation when I was yet a medical student; and was a patient of Dr. J. H. Rose, with whom I was later associated in practice.

She was 26 years old and the mother of three children and had always enjoyed good health. Had normal deliveries with no complications in the puerperium. The youngest child was two years old and a pregnancy had not since occurred. There was no history of a venereal infection nor any symptom suggesting such. On her first presentation to Dr. Rose for his professional services I desire to plainly state that there was nothing in her appearance to suggest a tubercular infection and I must frankly admit that there was no such suspicion lodged by either of us, in fact nothing was further from my mind at that time.

The history given by her riveted our attention within the pelvis and, sad to say, we could never get out of it nor surmount the difficulty despite the fact that with internal, bimanual and other combined examination which the female pelvis is forced to undergo there could not be found a sufficient morbid anatomy of structure or relation of the pelvic contents to explain the morbid physiology of which she complained.

Her monthly periods, which had always been regular almost to an hour and of the twenty-eight day type, had since her last confinement become irregular and occasionally absent. The flow, which had previously lasted for four or five days, had occasionally become suppressed with a sudden stoppage at only one or two days' flow. The normal period of depression and discomfort had become greatly exaggerated in point of both severity and duration until she was scarcely ever free from it and which at times amounted to severe pain in the back and a sense of unbearable pelvic weight.

You will probably ask here for our diagnosis. What treatment was instituted and what were the results?

I shall answer the last first by stating that for the patient's benefit the results were only too gratifying, which gave her false hope and lost much valuable time for her medical advisers.

She improved, yes, temporarily, so far as her symptoms were concerned, but the fountain-head supplying those symptoms was higher up and had, needless to say, never been reached by our therapy.

As for the treatment, it was, needless to say, that usually applied in such cases, and consisted locally of boroglyceride tamponade and hot vaginal douches of creolin. The systemic treatment consisted of the so-called uterine tonics of viburnum, cimicifuga, gossypium and others I fear equally void of potency so

far as reaching the seat of the disease was concerned. But the symptoms did ameliorate in response to, or in spite of, our therapy, but which I shall leave for you to decide.

Now, as to the diagnosis; this was entirely tentatively held by us for several weeks, yes, months, until at an office visit there arose for our consideration another question, foreign we thought to the one by which we had been previously engaged; that was one of a severe cold that the patient had contracted in the fall and early winter and which persisted in hanging on with more or less chest symptoms.

So, after this examination, there was not much difficulty in associating all symptoms and cleaning up the perplexities of pelvic findings, or rather the absence of such findings, and transferring the seat of disease from the pelvic to the thoracic cavity.

Case 2. Another case coming under my observation a short time after I had entered practice made an impression that I shall not soon forget.

I was first consulted at my office by the patient who had a history of a rather profuse and continuous menstruation for the last six months and which seemed to grow worse. An examination was made of the pelvic viscera with negative results.

She was twenty-six years old and had borne two children. Her labors were normal, but she had aborted once previous to her first labor at term. All other history was negative as well as the finding on examination.

I dismissed the case with the assurance that there was nothing about which she should be alarmed. Following this examination I was occasionally informed by the husband that the symptoms were not improving but were growing decidedly worse. Finally I was called to the home, where I found the patient suffering, as had been suggested to me by the husband, with a severe uterine hemorrhage. I immediately made an internal examination, expecting to find part or all of a dislodged ovum, but failed to find even a trace of decidual shreds.

I tamponed the vagina and returned in eight hours to find nothing but clots behind the tamponade. The tamponade was repeated with the same results except the flow had abated; and three or four days in bed resulted in her recovery.

This experience was repeated for three successive months with the exception that the hemorrhage grew less and by the next three months had ceased altogether. Then I was again consulted for suppressed menstruation and again thinking pregnancy possible succeeded in quieting their fears.

After continuing with irregular and absent periods for a while I was approached by the husband concerning vicarious menstruation and on questioning him ascertained that she had on two or three occasions spat blood.

Then I became aroused and through some pretext or other obtained permission to re-examine my patient, which I did, manifesting as much zest in the chest examination as I had previously in the pelvic investi-

gation and with much more reward, I am sorry to say, for my efforts.

Case 3. I am indebted to Dr. R. B. Kane of Raleigh for the following case, which very graphically illustrates the point under discussion.

A patient who consulted him for what she chose to call "nervousness" was thirty-eight years old and the mother of four children. She had always had normal deliveries with the exception of a second degree laceration which was not repaired.

There had been no impairment in function of the reproductive system until about a year before consulting the Doctor for the condition just named, when a leucorrhea appeared, which was at times very annoying. Soon after the appearance of the leucorrhea the menses became much more profuse and at the time were appearing semi-monthly, instead of monthly.

There was no history of pelvic inflammation or venereal infection nor any evidence of such on examination. In his subsequent attendance Dr. Kane ascertained that there was a temperature of 99 to 100 degrees for a few days at each catamenial flow, which gradually became more marked in duration until it became continuous.

Dr. Kane informs me that this case has now reached an advanced stage of pulmonary tuberculosis and in the absence of any anatomical pelvic findings a profuse semi-monthly menstruation continues.

Case 4. A case of Dr. C. W. Turner with a history of suppressed menstruation for several months was at first thought to be a pregnancy but later a cystic tumor of the ovary. She finally came to the operating table for an exploratory laparotomy, which was performed and which revealed a tubercular peritonitis with effusion. She later revealed advanced pulmonary lesions to which she succumbed one year later.

In this case there was nothing tubercular about the appearance. Her nutrition was above par and any examiner not making a chest examination a routine might easily have omitted it here.

Case 5. Dr. E. W. Cummins relates a case of a Lithuanian woman consulting him for a severe and intractable dysmenorrhea with nothing pathological about the pelvic contents. This condition had followed a wetting and a cold as she would have it and she demanded of her physician medicine that would relieve the pain and produce a regular and normal flow. A chest examination, I am told, revealed evidence of incipient tuberculosis.

These and similar cases could be indefinitely repeated, but are not needed to complete this lamentable chapter in the record of my experience as well as in that of others with whom I have been closely associated in practice and who have been honest and conscientious enough to impart their failures as well as their successes.

So in conclusion I desire to briefly state that often much more valuable information concern-

ing gynecologic affections may be found in the thoracic than in the pelvic cavity, and that no gynecologic examinations is complete that does not take the lungs into consideration.

DISCUSSION.

Dr. Wm. F. Grinstead, Cairo: I think we should not lose any time in hesitation as to the discussion of a paper which is so practical and so timely as the paper that has just been read. I say that it is practical and it is timely. It frequently occurs in the office of the physician that a mother brings her daughter for treatment for amenorrhea. She expresses her alarm that if this amenorrhea is not corrected promptly her daughter will go into consumption. This is a very common occurrence in the physician's office, and every one here can testify to that. It becomes necessary for the doctor to explain to these people that the amenorrhea does not cause tuberculosis, but that the patient, or the patient's mother, has the cart before the horse, that tuberculosis itself causes amenorrhea.

When one of these girls comes to the office, there are two causative elements that occur to the mind of the physician at once. One is the possibility of pregnancy, which is usually easily excluded, and the other is tubercular infection. Now, people should not be permitted to believe that the amenorrhea is causative, but they should be always instructed that it is an effect, absolutely, and those patients should be carefully examined for tubercular infections. These infections may involve the sexual organs themselves; they may be in some other part of the body and, as we know, most commonly are in the lungs. I am reminded in this connection of another thing that I believe is often overlooked; it is the causative element in tubercular peritonitis. There is no doubt but many of these cases of tubercular peritonitis in females originate from tubercular disease in the tubes. The fact has been explained by some of our leading gynecologists that the making of a small opening into the abdomen in tubercular peritonitis, mopping it out, closing it up tightly without drainage gives a cure in many of these cases, by the supposition that tubercular tubes have their fimbriated extremities kept open by the fluid that is usually poured out into the peritoneal cavity, and that when this fluid is mopped out and the tube and its fimbriae cease to flow, the lumen and the fimbriated end collapse, become sealed up, and the tubercular infection of the tube is shut off from the peritoneal cavity. It is well to remember that many of these cases of tubercular infection that have been referred to by the essayist have the infection located in the tubes or possibly in the ovaries.

Dr. E. E. Edmonson, Mt. Vernon: The importance of tuberculosis we know is growing more and more on our consciousness, and I would like to suggest that the early use of tuberculin as a diagnostic agent in these cases might give us

some light on the subject at an early date, also that we look well to the avenues of infection. This is especially true of the tonsils. You do not expect any but a throat man to talk about tonsils, but we have a great many men who are specialists on diseases of the chest that now look first to the tonsil, and if there is a tonsil they have it removed. The great physician of Chicago, Babcock, has every tonsil removed where he has a case involving an endocarditis or an incipient apical tuberculosis. I would emphasize, then the diagnostic test of tuberculin, which is regarded as fairly positive, (and I would suggest that because it is easy to administer and the results are typical); also to look for the avenue of infection and remove it.

Dr. A. J. Butner, Harrisburg, closing: I do not know that I care to add anything except to emphasize what has just been said of the tuberculin test. As mentioned, I think that in gynecological examination that it is not positive—it may come from some other source, and the cutaneous tuberculin test should be omitted—but, as the doctor has just stated, it will often show us that there is a tubercular focus somewhere. I might add that the examination of the throat and the tonsils is no less important; while it is out of the way of the general practitioner, he can soon become sufficiently versed with the appearance of the tubercular throat or tonsil so that he can tell if there is a focus there or, at least, if it appears suspicious.

IMMUNITY IN TUBERCULOSIS.*

W. H. WATTERSON, M. D.

WAUKEGAN, ILL.

Specific antibacterial immunity is the power of the living organism to cause the disintegration of the related bacteria when they enter the tissues including the blood, fitting them thereby for appropriation as food and for elimination.

The *success* of immunity depends on the *ability* of the body cells to produce sufficient specific anti-bodies in response to the stimulus of inoculation, and the ability of the circulation to convey these specific anti-bodies to the area of infection. Immunity is a relative matter. It differs with individuals, also with infections. There must be some natural immunity, or the child would show clinical manifestations at the slightest initial infection. But instead the bacilli are destroyed and going into solution form a stimulus which produce through the body cells added specific anti-bodies or immunity against a much greater future infection. Now, if this primary infection or any further infection be greater than

the natural or excited immunity can withstand, or if the body cells are unable to produce sufficient anti-bodies in response to the stimulus, there results clinical manifestations of the disease.

We may measure specific anti-body formation, comparing the number of bacilli taken up by the leucocytes in tested blood with that in normal—Wright's opsonic index. We, therefore, seem to have a positive means at hand to produce sufficient immunity, could we measure the stimulus (infection), and if we are assured that this immunity will reach the infected area. The latter cannot be expected in far-advanced cases with walled-off areas, nor in non-vascular tissue, but even here a high degree of immunity is of great importance, as it protects healthy tissue. Therefore, except in advanced cases, the only uncertain element, the one not under our control, is the stimulus (the infection, not only in amount, but also its virulence).

The ideal would be *no infection*, but since Nägeli in 500 autopsies at Zürich found that 98 per cent presented evidence of tuberculous infection at some time during life; as later observers, including Jaboci, found 30 to 40 per cent. of children in villages where tuberculosis had not existed for years, to react to tuberculin test; and since an average of the findings of Burekhardt in Dresden, Von Picrquet, Römer, Hanberger, H. Albrecht and Colm showed over 90 per cent. infected before the age of 16, and since it is now conceded that tuberculosis is an infection contracted in childhood and rarely in later life, we cannot hope for the ideal as long as immunity is not procured prior to or soon after infection occurs.

Von Ruck and Achard's article in *Pediatrics*, December, 1913, may well be quoted in part at this time: "We believe, therefore, that in the human race a specific resistance, either transmitted or acquired, though often inadequate, is, as a rule, already present and that this accounts for the complete resistance to tuberculosis in some persons, and in others for the presence of latent tubercle bacilli without lesions in various tissues, for the spontaneous healing of minute and localized foci found so frequently on autopsy after death from other diseases, as well as for the chronic course and the tendency to recover in cases in which the disease has declared itself."

*Read before the Waukegan Clinical Club, Jan. 4, 1915.

The amount of infection depends on the intimacy and duration of contact with the bacilli; the whole anti-tuberculosis campaign is being waged on this fact. Comparatively few show clinical manifestations of tuberculosis prior to the age of 16; before the age of life strains at wage-earning and child-bearing. As previously intimated, clinical manifestation is evidence of insufficient immunity to withstand the infection. While slight infection in early childhood is not desirable, yet, if it occurs, it gives added immunity resulting from that infection; *but* there is danger in infection as the amount and virulence of infection is not under our control, even with all anti-tuberculosis measures.

Now, if a substance could be produced that could, under our control, *stimulate* these specific anti-bodies and not put the patient in jeopardy, as with infection, measuring the stimulus and the results by Wright's Opsonic Index and a clinical study of *each* case, we could obtain a degree of immunity that would withstand any degree of infection.

Koch's O. T. attempted this, but, besides "the-more-the-better" idea which threw it into disrepute, it lacked certain elements of the bacillus necessary to produce specific anti-bodies.

Other tuberculins attempted adding other of the elementary parts of the bacilli, but all processes of making spoiled some essential substance, either by heat or filtration or growth. Then came Friedmann, producing avirulent bacilli by its growth in the cold-blooded reptile, but the recurrence of the virulence, after injection into the human, was so probable and the results so unsatisfactory, that it was not accepted.

The oldest American investigator of this subject, Dr. Karl Von Ruck of Asheville, N. C., insisted that we must produce a stimulus that contained *all* the *substances* of the *bacillary bodies*, including an excess of extracts stimulating fibrosis, while the caseating extractives are removed.

His efforts to produce such a substance was reported in the *Therapeutic Gazette*, June, 1897. Lately, he has produced a more perfect substance, known as "Dr. K. Von Ruck's Vaccine Against Tuberculosis." With this vaccine he has immunized guinea pigs, "all the controls showing generalized tuberculosis, whereas, all the animals infected with tubercule bacilli to which immune

serum had been added were absolutely free from tuberculosis."

Unfortunately, when investigation was being made of this preparation by the Hygienic Laboratory in Washington, under Dr. Anderson, an epidemic of pseudo-tuberculosis, so common among guinea pigs, was found by Dr. Von Ruck among his own, and then among the Washington pigs. Of course, results of investigations with such pigs would be misleading, and the report was, therefore, not permitted to go to the Senate, for whom it was intended. Later investigations have not been reported from Washington.

Dr. Von Ruck took his vaccine to Europe for investigation. Sir Almroth E. Wright of London, the German University at Prague, the Pasteur Institute of Paris, the Sero-Therapeutic Institute in Vienna, and the Hygienic Institute in Danzig are investigating the serum. Of course the war has delayed much of this work and reports on that which has been done, but a cablegram dated December 2, 1914, to Karl Von Ruck, states that Sir Almroth Wright's laboratory in London advises complete confirmation in bactericidal and immunity experiment.

Dr. C. A. Julian, at the Baptist Orphanage at Thompsonville, N. C., immunized 262 children, and reports some 450 others in his paper read before the twelfth annual meeting of North Carolina Academy of Science, April 22, 1913. His report is so optimistic as to command the attention of every phthisiologist. Dr. H. Longstreet Taylor of St. Paul reported a number of adults and children treated and most heartily indorses the watery extract and later the vaccine now used at his sanatorium.

If Dr. Von Ruck is confirmed in his claim that his vaccine will actually prevent tuberculosis and consumption as Jennerization prevents smallpox, it follows that the general adoption of his method will solve the tuberculosis problem in a single generation.

My experience has been with Von Ruck's vaccine, covering one year, as follows:

As a prophylactic in ten cases, therapeutically in 31 early, 33 moderately advanced, and 15 far advanced pulmonary cases, one scrofulous case, one surgical case, two laryngeal cases, and two pregnant women among the moderately advanced cases.

The prophylactic cases were where direct exposure and contact was intimate and for a long period of time. In every case there was marked improvement

in health, and up to this time no report of clinical manifestations of activity.

The 31 early cases all improved from the first and have remained well since, with one exception, where return to Chicago and a former dusty occupation resulted in a renewed activity, but a slow fibrous type.

Five of the 33 moderately advanced cases had to stop its use on account of marked constitutional disturbances. All the others showed continuous and marked improvement. A notable feature was the change to a fibrous type in many of these cases.

Thirteen of the 15 far advanced cases had to stop vaccine on account of marked constitutional disturbances; the other two took on a fibrous course improved until a recent examination by one of our best Chicago diagnosticians failed to develop any active signs of the disease.

The scrofulous case improved from the first.

The surgical case showed marked improvement during the two months he continued treatment. Since then I have not been able to hear how he progressed.

The two laryngeal cases were most interesting to study. After each injection local reactions were noted. These discontinued; in one case after dose of .5 c.c. had been reached the reaction ceased; ulcerations healed and patient showed evidence of apparent arrest which still, after 4 months, prevails. The other case improved in every way as long as vaccine was given, but four weeks after discontinuing same, an abscess, intra-laryngeal, formed, which became so obstructive that I did a tracheotomy, but this absorption from this abscess was so severe, that he died four days later with every evidence of overwhelming toxic absorption.

The two pregnant women were in the usually critical condition of the pregnant tubercular when they entered the sanatorium, each showing considerable constitutional disturbance. After the routine period of rest after admission, vaccine was started. Improvement was shown in each case from the first, the disease becoming quiescent and remaining so until after the babes were born. Each had a healthy baby, and each is in good condition at this writing.

In similar cases reported by Von Ruck, of children born to immunized mothers, the immunity of the babe was shown by a quantitative complement-fixation test, to be of a much higher degree than that of children born to non-immunized mothers or even healthy mothers.

In all the cases taking vaccine carefully prescribed auto-inoculation treatment was given on all week days and Sunday a. m. The vaccine was given usually in 1/10 increasing doses up to 1 c. c., beginning with .002 c.c. after which each patient was sent to bed for two hours and kept quiet for the remainder of the day, the following day cautiously returning to the auto-inoculation treatment.

I have included some elementary facts, which to the phthisiologist are likely unnecessary, but

since this paper is intended for the general profession, I have ventured to include them.

The aim in a vaccine is to stimulate the same specific anti-bodies stimulated by an infection, yet, without producing infection with its uncertain consequence.

The *whole substance* of the bacillus seems essential to this process. This "whole substance vaccine" is produced in Von Ruck's vaccine against tuberculosis.

Since the ideal—no infection—cannot be expected, we can do most by immunizing prior to or soon after infection, or at least before clinical manifestations. Since it is rare to have clinical manifestations before the age of 16, and 90 per cent of infections occur prior to this age, the best time for vaccine treatment is at 16 or before. Other substances, as the tuberculins, lack the bacillary substance, being made up of culture fluid or otherwise in which elements essential to anti-body formation are lacking.

Reports on the immunizing power of Von Ruck vaccine on both animals and human seem very conclusive, and he is having these confirmed by the highest courts of judgment.

I was most pleased with the results obtained in my year's work with it.

Of course, all other measures as used in the recognized sanatoria, open air, rest, and graduated labor, artificial pneumothorax, rational feeding, etc., will always be in use, but therapeutically we seem to have a vaccine aiding in producing a higher and more lasting degree of immunity than was before obtainable. The immunization of the unborn is a new and hopeful aspect.

May we have at hand *the* vaccine that will do for tuberculosis what Jennerization has done for smallpox, and even more the therapeutic means of handling the already developed cases, and, if so, may we *so* carefully use it as to *not* put it into disrepute, as was done with Koch's tuberculin, giving Dr. Karl Von Ruck and his co-workers the credit due them.

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CHICAGO PLAN FOR MUNICIPAL CONTROL OF TUBERCULOSIS. THE CHICAGO MUNICIPAL TUBERCULOSIS SANITARIUM AND ITS AUXILIARY AGENCIES.

THEODORE B. SACHS, M. D.

President, Chicago Municipal Tuberculosis Sanitarium.

CHICAGO, ILL.

The Chicago Municipal Tuberculosis Sanitarium was created under the provisions of "An Act to enable cities and villages to establish and maintain public tuberculosis sanitariums," introduced in the Illinois Legislature by state senator Edward J. Glackin of Chicago, on January 14, 1908, and passed by the legislature at the same session. The Act provided for a special municipal four mill sanitarium tax, for the construction and maintenance of a sanitarium in any city or village which adopts the provisions of the law by a majority referendum vote at a municipal election.

On March 10, 1909, the legislature passed an amendment, introduced at the request of the Chicago Tuberculosis Institute by Senator Glackin, reducing the sanitarium tax to one mill.

On March 11, the Institute obtained 1,000 signatures for submission of the Act to a referendum vote at the coming municipal election on April 9. The brief campaign for the adoption of the Act by the City of Chicago was most effectually planned and vigorously managed, drawing enthusiastic support of all classes of the community. Of 254,025 voters casting their ballots at this election, 206,640 (81 per cent of the total) voted on the Sanitarium Act. The overwhelming sentiment in favor of the sanitarium was expressed in the tremendous majority of 167,230 votes "for" the proposition, as compared with 39,410 "against."

On April 19, following the election, the mayor of Chicago appointed the first Board of Directors, consisting of Mr. Harlow N. Higinbotham, Dr. Theodore B. Sachs and Dr. Wm. A. Evans, former Commissioner of Health, ex-officio. The Board organized on April 22 with Mr. Higin-

botham as president and Dr. Sachs as secretary and proceeded with the study of the situation and formulation of plans.

The funds for building the sanitarium were not available until January, 1911. The Board, however, anticipated the tax levy of 1911 by issuing tax warrants for \$10,000 and using this amount for operation of seven dispensaries, which on September 1, 1910 were transferred by the Chicago Tuberculosis Institute to the Sanitarium, the transfer having been made possible by an interpretation of the Sanitarium Act by the Corporation Counsel, in which dispensaries as "stations or outposts of the sanitarium" were declared an integral part of the institution.

The work of directing and mapping out the plans of the sanitarium was assigned on March 1, 1911, to Dr. Theodore B. Sachs, the secretary of the board, who was made chairman of the committee on plans.

On May 22, 1911, Wm. A. Otis and Edwin H. Clark were appointed architects of the institution.

The work of preparation of the plans has continued, since then, in daily sessions of the chairman of the committee on plans and the architects, Mr. Frank E. Wing acting as secretary. Through the entire period of preparation of the plans and elaboration of its various details, frequent conferences were held with the former and present Board of Directors, which at this time consists of the following members appointed by Mayor Carter H. Harrison: Dr. Theodore B. Sachs, president; Dr. George B. Young, present Health Commissioner, secretary; and Mr. W. A. Wieboldt.

The final plans represent the result of several years of work during which many similar institutions all over the country were thoroughly studied.

The Chicago Municipal Tuberculosis Sanitarium, as constituted at present, is being operated under a more comprehensive law than the original Sanitarium Act of 1909. The extension of the scope of the sanitarium was made possible by an amendment passed by the Illinois Legislature June 27, 1913 (Senate Bill 515, introduced by Senator Glackin), which confers on municipalities the power "to establish and maintain a public sanitarium and branches, dispensaries and other auxiliary institutions . . . for

the treatment and care of persons afflicted with tuberculosis . . . to extend the benefits and privileges of such institution . . . into the homes of persons afflicted with tuberculosis and to furnish nurses, instruction, medicines, attendants, and all other aid necessary

prehensive power and scope of work than its name implies. It is a *municipal organization* of a sanitarium, dispensaries and other agencies necessary in fighting tuberculosis in the community.

Its component parts are:

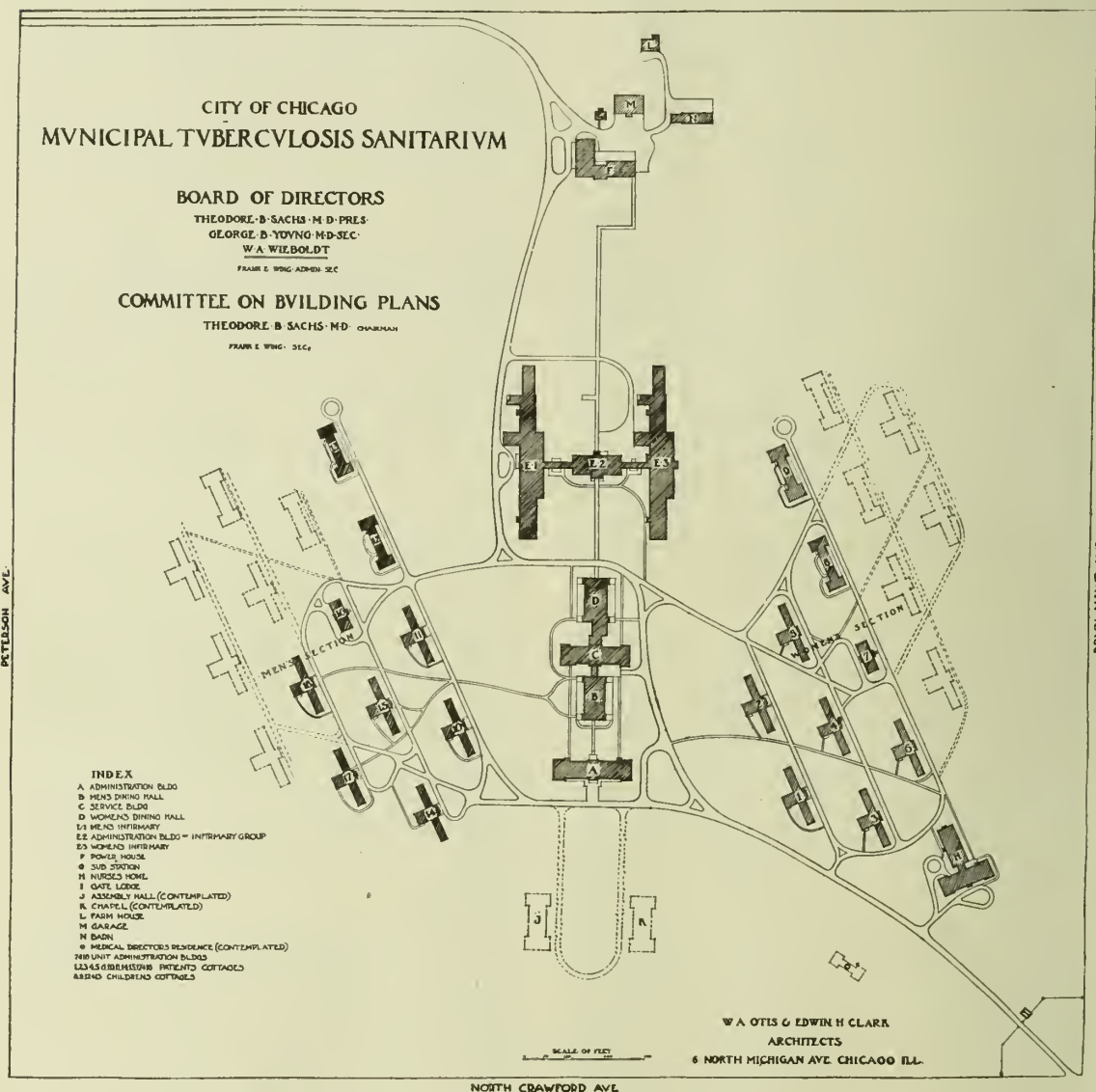


Fig. 1. Lay-Out of Buildings and Grounds, Chicago Municipal Tuberculosis Sanitarium.

to effect a cure, and to do all things in and about the treatment and care of persons so afflicted which will have a tendency to effect a cure of the person or persons afflicted therewith and to stamp out tuberculosis in such city."

Thus the Chicago Municipal Tuberculosis Sanitarium, as constituted today, has more com-

1. *The Dispensary Department*, the function of which is detection of cases of tuberculosis, selection of suitable cases for treatment at the sanitarium and other institutions, and supervision of the large number of cases which have to be treated at home, either before admission to an institution or subsequent to discharge, also of

cases in which institutional treatment is impossible for various reasons.

The sanitarium maintains 10 dispensaries in various sections of the city, with a force of 35 paid physicians and 50 field nurses. The growth of the work of the dispensary department is shown by the following tabulation:

	1911	1912	1913	1914
Number of patients under observation	4,943	9,159	12,593	14,972
Number of positive cases.....	1,911	2,196	2,727	3,538
Visits by patients to dispensaries	22,331	42,335	43,989	52,244
Visits by nurses to homes of tuberculous patients.....	31,980	32,678	39,737	46,183

2. *The Sanitarium Home Extension Department.* On April 14, 1914, the sanitarium established a bureau of special relief, the function of which is to facilitate the extension of "the

Since the organization four years ago of the dispensary department of the Chicago Municipal Tuberculosis Sanitarium, the educational activities of the sanitarium have steadily grown, necessitating at present the concentration of all educational work under the head of a well equipped educational department. Important preliminary steps in this direction have been taken and the educational work in all its branches, is being standardized and adjusted.

The educational propaganda carried on at present consists of:

a. Distribution of small leaflets bearing on early diagnosis of tuberculosis and giving location and hours of the ten Municipal Tuberculosis Dispensaries. Similar leaflets in reference to other important phases of the problem, for cir-



Fig. 2. Type of Children's Cottage, Chicago Municipal Tuberculosis Sanitarium.

benefits and privileges" of the sanitarium "into the homes of persons afflicted with tuberculosis," a provision included in the Sanitarium Act by the amendment of 1913 (Senate Bill 515).

The bureau of special relief concerns itself with remodeling and building inexpensive sleeping porches and supplying the necessary equipment for outdoor sleeping, such as beds, bed clothing, reclining chairs, canvas curtains, etc.

This first municipal undertaking of its kind in this country, having for its object isolation of the tuberculous patient from his family and giving him a chance to carry out rational treatment at home, is being carefully and economically worked out.

The bureau is bound to become an important factor in the activities of the sanitarium.

3. *The Educational Department.*

culuation among patients and their families, are being prepared by the dispensary department.

b. Publication of *Bulletins*. The first bulletin published by the dispensary department contained papers on various phases of the tuberculosis problem read by field nurses at the meetings of their Nurses' Tuberculosis Study Circle. The individual papers were: "Historical Notes on Tuberculosis," by Miss Rosalind Mackay, R. N., superintendent of field nurses; "Visiting Tuberculosis Nursing in Various Cities of the United States," by Miss Anna M. Drake, R. N.; "Provisions for Outdoor Sleeping," by Miss May MacConachie, R. N.; "Some Points in the Nursing Care of the Advanced Consumptive," by Miss Elsa Lund, R. N.; "Open Air Schools in This Country and Abroad," by Miss Frances M. Heinrich, R. N.

The second bulletin of the dispensary department is being prepared now. It will contain "Instructions to Field Nurses in the Dispensary Department," having reference to various phases of their work and methods of co-operation with other organizations.

c. *Publication of Bulletins of the Sanitarium Department.* A comprehensive "History and Description of the Sanitarium" is being prepared and will be issued in February. This will be followed by the publication of periodic bulletins bearing on the various phases of the sanitarium work.

d. Co-operation in maintaining the *Tuberculosis Exhibit* of the Chicago Tuberculosis Institute which in a period of 237 exhibit days was shown in field houses of various small parks and in some of the public schools, the exhibit being viewed by 246,904 people.

in the northwest section of the city. When completed, the cost of land, improvements, buildings and equipment will amount to about \$2,400,000.

The comprehensive provisions of the institution have been planned to meet, in an efficient way, the important phases of institutional solution of a tuberculosis problem in a large city. The plan is the result of years of study of the needs of the situation based on the experience of Chicago and other large cities. The present plant is the broad foundation on which Chicago is to begin the serious task of providing adequate and efficient institutional care for its large army of tuberculous men, women and children.

Some of the important and unique features of this Institution are:

1. *Location of the institution within the city limits*, giving the advantage of (a) greater facility of the control of the institution by the city,



Fig. 3. Group of Infirmary Buildings, Chicago Municipal Tuberculosis Sanitarium.

The exhibit, with its daily conferences and its entertainments, planned to attract large audiences, will be continued for 2-week periods in various public schools of Chicago until the end of the present school year. In addition to this exhibit, special tuberculosis exhibits were prepared by the Municipal Tuberculosis Sanitarium for the Housing Exhibit (1912) and the Public Health Exhibit (1914), both held at the City Club.

4. *The Sanitarium.*

The Chicago Municipal Tuberculosis Sanitarium is to open for admission of patients on March 1. In October, 1914, Dr. J. W. Coon, formerly superintendent of the Wisconsin State Sanatorium, was appointed by the Board of Directors as superintendent of the sanitarium, and the staff of the institution is being rapidly organized.

The institution is situated on a 160-acre tract,

unhampered by ordinances and prejudices of other communities; (b) *accessibility* of the institution to relatives and friends of patients; (c) accessibility of the entire institution to the entire community, thus enhancing its *educational influence*, and (d) accessibility to the *general medical profession* in Chicago, creating a link between the family physician and the institution, and placing the medical staff of the sanitarium in close contact with the medical organization, institutions and their leaders in a large city.

With all these advantages the sanitarium is in a good location, free from all undesirable conditions.

2. *Provision for Various Stages of the Disease.* The administrative facilities of the sanitarium, as now completed, are for the care of 950 patients (650 ambulant cases in cottages and 300 bed cases in the infirmary). On the day of opening of the institution, in March, the number of avail-

able beds will be 650, to be increased one year later to 950 by the addition of twelve cottages.

The sanitarium is for the accommodation of the incipient as well as the more advanced cases in which "arrest" or marked improvement of the process is possible with the application of the sanatorium methods of treatment. At present Cook County (of which Chicago is a part) provides, in its tuberculosis institutions, about 900 beds for the far advanced cases. With the further development of the Chicago Sanitarium, it is planned to materially extend its facilities for advanced cases.

3. *Comprehensive Laboratory and Medical Facilities for the Study and Treatment of Cases.* Full recognition has been given to the importance of: *First*, the study of the individual cases, with

5. *Maternity Department for Tuberculous Women.* This important provision, the first in this country, consists of a maternity department in the infirmary, with all the necessary auxiliary arrangements, and a series of adjoining private rooms, so located that their number can be easily extended to meet the demands of the situation.

6. *Nursery for Infants of Tuberculous Mothers.* The important provision of a nursery for infants of tuberculous mothers is one of the features of the institution. This is the first provision of its kind in the country. The department was planned for two classes of cases: (a) Newborn infants from the maternity department of the sanitarium, and (b) infants removed from such home surroundings in which prevention of infection is impossible. The full consent of the



Fig. 4. Type of Adult Patients' Cottage. Chicago Municipal Tuberculosis Sanitarium.

the aid of all the medical and laboratory methods in use in modern general hospitals, and, *second*, the efficient treatment not only of the tuberculous disease but also of all the co-existing and complicating conditions. The comprehensive arrangement includes a main laboratory, x-ray department, examining rooms, nose and throat rooms, dental and minor surgery rooms—in the main administration building; routine examining and nose and throat rooms and routine laboratories—in each unit administration building (for the ambulant cases) and in the infirmary; and in addition to that, operating rooms, orthopedic department and a special x-ray department—in the infirmary.

4. *Comprehensive Provision for Children.* Of the ultimate capacity of 950 beds, 240 are for children, housed in groups of 25 to 30 in open air cottages of an original design, in which the open air school is a prominent feature.

parents will be the prerequisite of admission to the nursery.

This undertaking will undoubtedly prove of considerable value in meeting one of the serious problems of the tuberculosis situation, namely: the care of infants of tuberculous mothers and education of the community in the matter of proper care of all infants with poor resistance who are in contact with tuberculous infection.

7. *Provision for Employment of Ex-Patients.* It was planned to give employment to as great extent as possible to discharged patients in various departments of the institution. In furtherance of this policy, open air sleeping quarters have been provided in various employes' buildings, the open air arrangements representing more than one-third of the entire housing provision for employes.

In 1905 the entire provision for tuberculous

patients in the City of Chicago consisted of about 200 beds for advanced cases, of which number 150 beds were in the Poorhouse. The City was devoid of the least evidence of any organized effort against tuberculosis.

In 1915 Chicago will have in all over 2,300 sanatorium and hospital beds, a comprehensive, well organized dispensary system and all other auxiliary arrangements essential in the fight against the disease. This places Chicago in the forefront of American cities.

SUPPURATIVE GLANDULAR TUBERCULOSIS, SIMULATING TYPHOID TERMINATING IN MILIARY TUBERCULOSIS.*

H. J. DOOLEY, M. D.,
CHICAGO.

The following case of acute miliary tuberculosis, which had been treated as typhoid fever and later as epidemic meningitis, was very instructive and interesting to those who saw it and, thinking its unusual aspects might prove so to others, I decided to report it.

W. M.—American, single, age 20 years, by occupation a barber, presented himself to me, after becoming gradually ill during previous two weeks. Before this time, he stated, that he has entirely well. He then complained of feverishness, malaise, anorexia, pain across the front of the chest, slight pain in the right lower abdomen and slight headache, but had had no cough, no epistaxis and no diarrhea. As stated, his trouble began two weeks before, after a slight cold and although the patient insisted upon working even up to the first day I saw him, his employer advised him otherwise. There were no gastric, genito-urinary or nervous symptoms present.

Inquiring into his previous history, I found it practically negative, except that he had been exposed to an advanced case of pulmonary tuberculosis for several weeks, in the person of the porter at the barber shop. Except for the diseases of childhood he had no illnesses before. He was temperate in his habits as regards smoking and drinking. He denied venereal infection. He had lived in Chicago for several years before which time he resided in southern Missouri. Examination at this time showed a well developed and moderately well nourished young man, with flushed cheeks, who looked sick.

His temperature was 101.5 F. by mouth; pulse rate of 100, regular, and of good quality; respiration 22 per minute.

Except for the coating of the tongue and flushing of the cheeks above noted the head and neck were negative.

Examination of the chest revealed the movements of the thorax, excursion of the lungs, to be normal and equal on the two sides. *There was some tenderness over the anterior chest, which seemed particularly marked over the sternum.* Findings of a general bronchitis over both lungs, but no localized areas of dulness or rales were elicited.

The heart was negative except for accentuation of pulmonic 2nd. There was no eruption on the abdomen or chest. No tympanites and no splenic enlargement palpable. There was some tenderness, but no rigidity in the right iliac region. Genito-urinary system was negative; extremities, except for brisk knee jerks, were negative, eye and ear, and nervous system were also negative.

Concluding at this time that he had some intestinal infection, either la grippe or typhoid fever, I advised him to enter St. Anthony's Hospital for further observation and treatment. The following day he walked to the hospital, a distance of several blocks, stating he felt well, but on being put to bed it was found he had a temperature of 105, pulse rate of 110 and respiration of 22, and that he was quite prostrated. I saw him the next day when he had more headache, more iliac tenderness and gurgling, enlarged spleen and a few atypical rose spots on abdomen and chest. The leucocytes were 5,600, Widal and blood culture were negative.

In a few days his general appearance was quite typical of typhoid fever, with apathy, sordes on lips, tympanites, typhoid odor and typhoid stools.

He was placed on typhoid orders, after thorough cleansing of the intestinal tract with calomel and castor oil, so that at the end of the first week in the hospital, his temperature ascended to not more than 102° at night and his general condition seemed good.

The course continued uneventful for four weeks with mild continuous fever, relatively slow pulse, leuconpenia, but a persistently negative Widal reaction. In all six were performed, two by Dr. Sprafka, the interne on the service, two by the Health Department and two by myself. In the case of the latter, they were negative even in a dilution of 1 to 20 in one hour. Suspecting therefore, that it might be some infection other than typhoid we exhausted every means to find another focus of infection, but of no avail. Repeated examinations of sputum, urine and blood showed nothing and careful watching of endocardium, gall-bladder, lungs, joints and other possible localizations were negative. A moro tuberculin test was negative, but this was of no importance because of his fever. The latter was quite typical of typhoid fever and the pulse and temperature relations would certainly point to that infection.

Six weeks passed and the patient remained about the same, his fever averaging 101.5° at night. Although he was "feeling fine," to use his own words,

*Read before Douglas Park Branch Chicago Medical Society, Dec. 15, 1911.

we now began to look for some complication to account for the persistency of the fever, concluding it was probably not typhoid, but paratyphoid with which we were dealing. On deep palpation in the right iliac region I was surprised to find a rounded, tender mass, too low, apparently for the kidney and nearer the location of the appendix. We suspected at first that this was a lymphatic abscess, but upon examination a few days later, when it was less tender and the tympanite was less marked, it was easily determined to be a low movable kidney. This was confirmed by Dr. S. E. Donlon, Dr. Ticken, and also by Dr. Ryan. Each of the above consultants could find no signs of a localized infection and believed the case to be one of typhoid fever running an unusually long course, in spite of the negative widals.

Consulting the literature on atypical typhoids, I noted a class of cases, called attention to by Osler, in which the persistency of the fever was a nervous phenomenon. He advised increasing the diet, allowing the patient to sit up and cease taking the pulse and temperature for a few days. Knowing it could do this patient no harm, I increased his diet, first to soft diet and later to a full diet and he seemed to improve under it. At this time his fever still ascended to 101° at night and after a few days he begged to get up. At the end of the eighth week, therefore, we permitted him to sit up beside the bed and finally to walk around a little.

While he always said he felt well, he seemed quite weak and his fever remained the same, his pulse now averaging 110. It was upon his urgent request to leave the hospital, stating that he was sure he would get along quicker and better, that I yielded and permitted him to go, advising him to come to the office in a day or two, as I intended to do a paratyphoid widal on him, but particularly to watch his pulse and temperature.

He seemed to be doing nicely for three or four days after leaving the hospital, although he did not present himself for examination. He left the hospital on a Monday and I was called to see him the following Friday at the house, where he was suffering with headache and general weakness. My suspicions of meningeal involvement were aroused on examination by the headache, mental dulness, slight fever, slight rigidity of the neck and a slight Kernig on one side. I ordered him sent to the hospital and this time, on account of lack of funds, he was taken to the Cook County Hospital. His course here was this: He entered ward 4 July 1, with the examining room diag-

nosis of relapsed typhoid. As may be seen from the history, no signs of meningitis were elicited by the interne at first examination. The following day, however, spinal fluid showed increased pressure, was serous, Nonne-Pelt test positive, cells were 160 per ccm., lymphocytes predominating. Leucocytes were 7,400, widal reaction negative, dilution 1 to 40 in one hour.

Patient became progressively worse, more stuporous with more rigidity of the neck, nystagmus and marked Kernig. July 4, spinal puncture showed clear fluid, not under pressure, predominance of polymorphonuclear leucocytes and a gram negative diplococcus, not intracellular. On account of the latter finding he was given 15 c.c. antimeningococcic serum, which we repeated the next day. He became rapidly worse, however, and died July 6, five days after entering the hospital and eleven weeks after the onset. Permission for a post-mortem examination was obtained and was performed the next day by Dr. Bissell, the pathologist of the Cook County Hospital. The following were the findings:

Marked caseous tuberculosis of the tracheo-bronchial lymph nodes.

Marked hyperplastic fibro-caseous tubercular biliary lymph nodes.

Tuberculous ulcer of ileum.

Tabes mesenterica.

Marked nodular fibro-caseous tubercular spleen.

Marked bilateral tubercular broncho-pneumonia.

Marked tubercular basilar meningitis.

Miliary tubercles of choroid plexuses of both lateral ventricles.

Muco-purulent tracheo-bronchitis.

Marked bilateral hypostatic congestion and moderate edema of lungs.

Cloudy swelling of kidney, liver and myocardium.

Moderate acute emaciation.

Multiple hypodermic puncture wounds of both arms.

Fibrinous persisplenitis.

Focal peritonitis (fibrinous) over the parietal peritoneum covering the right kidney.

Retrocecal-appendix.

Redundant colon.

Jackson's membrane.

Abnormally low position of right kidney.

Fibrous adhesions between lower border of liver and the hepatic flexure of the colon.

Moderate focal nodular sclerosis of the lining of the aorta and of the aortic and mitral valves of the heart.

Unequal dilatation of the pupils.

You can readily see from what I have read what a strong alibi we have for our first mis-

taken diagnosis. At the onset this patient had practically every symptom of typhoid fever, except the positive Widal, bacillema and typical rose spots, yet he did not have typhoid or paratyphoid. Later, on account of the insidious onset of the meningeal symptoms, we concluded the involvement was tuberculous, and began to suspect that the intestinal condition might also have been phthisical, though we were at a loss to point out the primary focus, which only the post-mortem demonstrated.

Taking into consideration the termination and post-mortem findings, we theorized as follows, to explain the symptoms and course:

The patient probably first developed a bronchial gland involvement, which produced the primary symptoms of a moderately severe infection, such as fever, malaise, anorexia and especially the pains over the anterior chest. At this time he probably had some ulceration in the ileum also, because of the local symptoms there, and it was this latter lesion, which became rapidly worse and secondarily infected, just previous to his entering St. Anthony's Hospital, that we believed produced the symptoms, which so closely resembled typhoid fever. This localization, of course, produced the *tabes mesentericae* and biliary lymphadenitis. His subsequent course at the hospital was due to these abdominal foci and the bronchial gland lesion, although there were at this time no symptoms localizing either. In all probability it was the latter lesion, that is, the tracheo-bronchial adenitis, which ulcerated into a tributary of the pulmonary vein, which brought about the acute generalized tuberculosis of which the tuberculous meningitis was a part.

Being able to follow the conduct of the case, from the very onset through the post-mortem it impressed me strongly as illustrating the well-known similarity between typhoid fever and miliary tuberculosis. Osler says, in respect to them, "At the onset, tuberculosis may readily be mistaken for typhoid—rarely the reverse—and the subsequent course, if it lasts weeks, will usually clinch or rule out the possibility of typhoid fever." This case, I believe, was a good example of this principle.

4000 W. Harrison Street.

SPINAL ANESTHESIA IN GYNECOLOGY.*

H. J. BOLDT,
NEW YORK, N. Y.

I have been honored with a request to speak to you on local and spinal anesthesia, and scopolamine and morphin narcosis; and to give a practical demonstration of operating upon patients under the influence of such non-inhalation narcosis. While I assure you that I appreciate deeply this honor, I am nevertheless certain that you could, probably, in your own midst, have found a better exponent of the method.

It is not my intention to inflict upon you a long address. It is my purpose, rather, to limit myself to a few practical remarks from my personal point of view, and to make these briefly; chiefly because I am selfish enough to wish to learn from other speakers.

The subject of local anesthesia for gynecological operations, I feel constrained to omit, in that I do not consider my experience yet large enough to speak authoritatively on that phase of the subject. For general surgical operations, however, I can assure you that, so far as I have been able to observe, there are few operations that need be excluded. Particularly at the Imperial Surgical Klinik of Bier, at Berlin, was this made clear to me. Extensive thyroidectomies, resections of large joints, etc., are done daily at that clinic, under novocain anesthesia. Baum has rendered to the medical profession and to suffering humanity an invaluable service by his practical work and writings in this field of endeavor.

Medullary or spinal anesthesia has many adherents, but it has still more opponents; and the reason therefor I shall make obvious. Cocain was the first drug used for this purpose. I employed it for a short time in cases where I considered inhalation anesthesia hazardous, but because of the frequently reported fatalities, I discontinued it. Stovain and tropocain I never made use of; for while these drugs are less dangerous than cocain, yet fatal results often followed their employment. In the thousands of cases of patients upon whom novocain was used, however, I failed

*Read before the Clinical Congress for the Study of Local, Spinal and Scopolamine-Morphin Anesthesia, Chicago, Ill., Jan. 26, 1915, under the auspices of the Chicago Medical Society.

to find a single recorded fatality attributable directly or indirectly to the drug. For this reason, I again began the use of spinal anesthesia.

Failures to Bring About Anesthesia—The worst that I can say for medullary anesthesia is that it may occasionally fail, so that inhalation anesthesia must be resorted to. Nevertheless, in my own practice, I have had but one complete failure and but few partial failures, making in these latter a small quantity of ether necessary. Concerning the complete failure, I may add that in the preliminary narcosis, though a total of half a grain of morphin and 1/60 grain of scopolamin had been injected, they failed utterly in bringing about a physiological effect. There was no fault in the technic of the spinal puncture; the spinal fluid came out in a strong jet, and 2 c.c. of a 10 per cent solution of novocain were injected.

Undesirable Effects—These are limited, so far as my observations go, to occasional more or less severe headaches, which sometimes continue for several days. They are usually relieved, however, by the administration of the combined bromides; a total dose of 2 gms. of the combination of potassium, sodium, and ammonium bromide being given in a glass of water at intervals of four hours, until three doses have been given. In some instances, pyramidon has given prompt relief. When the headache is very severe and very obstinate, despite the remedies used, the puncturing of the spinal canal and letting off about two c.c. of fluid is said to bring about prompt relief. But I have had no patient in whom it was necessary to resort to repuncture. My patients with headaches have decreased to an almost negligible number, since my practice is to allow about as much fluid to flow off as injected. Another untoward symptom occasionally met with is nausea during operation. Sometimes this is associated with vomiting, which makes it very disagreeable, particularly in abdominal operations, but on the whole, the undesirable symptoms occur so seldom that I cannot regard them as a deterrent objection to spinal anesthesia.

The occasional paralysis of one or both extremities, a few instances of which have been reported, I believe to be due entirely to faulty technic. I have seen none. Where such paralysis has occurred it was only temporary.

The last objection that may be raised against

spinal anesthesia, and in my opinion the most valid, is that the patient is conscious of what is going on and can hear everything that is said. This, then, brings us to the question of preliminary narcosis, which I consider as important as the spinal injection.

Preliminary Narcosis—I should not care to subject any patient to spinal anesthesia without preliminary narcosis. The narcosis should be deep enough to give us reason to believe that the patient will be oblivious to surroundings. The preliminary narcotic—hydrochloride of scopolamin (Merck) and morphin—should be prepared freshly, and I prefer to give it in divided doses, because owing to occasional susceptibility to the drug, a third dose may prove unnecessary and be omitted. The powders, hydrochlorid of scopolamin 1/60 grain, and morphin 3/8 of a grain (until a few weeks ago, only 1/4 grain of morphin was included), are put into separate powders. Just before the first dose is to be given they are dissolved in two c.c. of boiling water. One-third of the mixture is injected 2½ hours before operation, and one-third at the end of an hour. When an hour later, the third dose is due, it can be ascertained whether the patient is sufficiently under the effect of the narcotic to make a good subject for spinal anesthesia. That is, whether so lost to surroundings as to be heedless of what is going on, and likely to sleep throughout the operation or the greater part of it. I have no set dosage—it depends entirely upon the circumstances. In very heavy patients I do not hesitate to give 1/6 grain morphin for each of the first two doses, and 1/4 grain morphin for the last dose, in conjunction with scopolamin, if the patient at the time that the third dose is due is still wide awake. I take the view that it is cruel to subject the patient to spinal anesthesia without preliminary narcosis; and I believe that this may be one of the objections which very many entertain against medullary narcosis. The same holds good for local anesthesia. The preliminary narcosis that I have mentioned in the foregoing in connection with spinal anesthesia should be employed.

Indications for Spinal Anesthesia—If one should ask me: "Is spinal anesthesia indicated as frequently as I make use of it?" I would unhesitatingly answer, "No." Indeed, as a matter

of fact, it is indicated in comparatively few cases. For those patients in whom inhalation anesthesia is contra-indicated because of some organic defect of their system, or because of exceptional obesity—and we know that exceptionally obese patients do not bear an anesthetic as well as the ordinary class of patients, particularly if they have been accustomed to the use of alcohol—we can conscientiously say that either spinal or local anesthesia is *the* method of anesthesia. How comparatively seldom such cases occur, we all know. We also know that ether, in conjunction with nitrous oxide and oxygen, is a comparatively safe anesthetic. I believe it to be about as safe as novocain. Therefore, it stands to reason that if we also consider the objectionable features to novocain anesthesia, there is a good reason for so many to decline to make use of it, in spite of its being far more economical than any other form of inhalation anesthesia.

Still, there is another condition that I may cite in favor of novocain anesthesia in conjunction with the preliminary narcosis: in case of necessity we can dispense with one assistant; which is of paramount importance, particularly in country practice, or in some instances of emergency.

Some may object to spinal anesthesia because of supposed risk incurred when the spinal puncture is made, but I can give positive assurance that there is no reason for apprehension if proper technic is used and thorough aseptic precautions taken. Of course, we know that no matter how trifling an intervention may be, there is risk if not properly made. All things considered, however, and basing the conclusion on my personal experience, I unhesitatingly say that I would sooner give up the use of the scalpel in doing surgery than give up spinal and local anesthesia in connection with preliminary narcosis by morphin and hydrochlorid of scopolamin.

I have found that from $1\frac{1}{2}$ to 2 c.c. of a 10 per cent solution of novocain is the most reliable strength; although a five per cent solution is sufficiently strong for most cases. Further, that it is better to prepare the solution freshly rather than use ampule solutions.

In operations of long duration, 2 c.c. are used. In those of short duration 1.5 c.c. are sufficient.

SPINAL AND LOCAL ANESTHESIA COMBINED.*

L. H. DEBAYLE, M. D.

LYON, NICARAGUA.

Professor of Clinical Surgery of the Medical School of Nicaragua; Correspondent Member of the Académie de Médecine de Paris; Formerly Dean of the Medical School of Nicaragua.

Résumé.

I adopt this term to describe a method that I have employed for many years with the best results and without any immediate or late accidents.

The spinal anesthesia, especially that secured by tropacocain and adrenalin solution, is in many cases complemented by a local one obtained by either novocain and adrenalin, or quinin and urea.

Owing to the well known dangers of general anesthesia during and after operations I have always tried to find a safer method. Following the work of my teacher Reclus, I began in 1887-1889 as an interne in the Hospitale Tenon and Hotel Dieu, Paris, associated with Dr. Dufournier, to employ local anesthesia by cocain solution. Afterwards, I used the spinal puncture and the spinal injection of cocain (Nicaragua, 1897-1899), which I substituted later by stovain (1899-1900), and by stovain and strychnin (Jonesco's method, 1909), which I never used in the upper parts of the spine.

After many trials, gathering by personal observation the several methods employed in France, Germany, Austria and England, I have adopted the method that forms the subject of this paper—using as a general rule tropacocain in salt solution with adrenalin (see formula 1). I have also used novocain (see formula 2) and in some cases stovain. I often complement the spinal injection with local anesthesia by novocain (see formula 5), or by quinin and urea hydrochloride ($\frac{1}{2}$ to 1 per cent), because it has been always my aim to use the spinal injection as low as possible according to the operative needs of each particular case. For instance, I have preferred, in performing a suprapubic cystotomy, to make the spinal injection in the 4th or 3rd lumbar in the space which will generally produce complete anesthesia of the bladder and other intrapelvic viscera, and, if required, to anesthetize the abdominal wall from the umbilicus to the

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pubis by local injection of a few c.c. of either of the two above specified solutions.

Following the same aim—to use only the needed amount of anesthetic—after five or ten minutes, according to the analgesic effects observed in the patient, I withdraw once or twice the amount of liquid injected, by which means I remove from the spinal canal, after acting on the cord from 25 to 35 per cent of the anesthetic.

Aside from these two factors—the site of injection, the lowest possible, and the amount of the drug employed, the smallest for the purpose,—there is another element of importance the role of which is most essential for the success of the anesthesia in the region where it is needed and the prevention of accidents due to the diffusion of the drug toward the upper part of the spine. This element is the specific gravity of the solution injected in relation to that of the spinal fluid. To the careful consideration of these three factors I am indebted, I believe, for the unmarred record of over 500 cases comprising a wide variety of intrepelvis, lower abdominal and perineal operations.

FORMULAS.

- I—Tropacocain0.05 grams
 (a) Sterile salt sol. (5%)..... 1 cc.
 Sterile sol. of synthetic suprarenin
 (1/1000) 5 drops
 For one injection.
 or, Tropacocain0.10 grams
 (b) Sterile salt sol. (5%)..... 1 cc.
 Sterile sol. of synthetic suprarenin
 (1/1000) 8 drops
 Inject 1 cc. or the whole amount.

I use solution (a) containing only 0.05 grams of tropacocain for short operations and sol. (b) more concentrated, introducing from 0.07 to 0.10 grams of tropacocain when I need intense and prolonged anesthesia. I have obtained anesthesia lasting two hours and a quarter by the use of this sol.

- II—Novocain 0.15 grams
 Normal salt sol..... 3 cc.
 Synthetic suprarenin0.00025 grams
 Inject 1½ cc.

- III—Stovain010 grams
 Sodium chloride0.10 grams
 Adrenalin0.125 milligrams
 Sterile water 1 cc.
 Inject ¾ of 1 cc.

- IV—(Dr. Babcock's light sol.)
 Stovain0.08 grams
 Lactic acid0.02 cc.
 Absolute alcohol0.2 cc.
 Distilled water (q.s. ad)..... 2 cc.

- V—(Local Anesthesia).
 Novocain 1. gram

- Adrenalin 0.0025 grams
 Normal salt sol.....100. cc.
 From 3 to 50 cc. can be used.

Note.—When I need a light solution in order to use the Trendelenburg position I use the following modification of formula—I (a):

- Tropacocain0.12 grams
 Synthetic suprarenin0.25 milligrams
 Alcohol (absolute)0.2 cc.
 Water (distilled)1.8 cc.
 Inject from 1 to 1½ cc.

Solutions 1, 2, 3, are of greater specific gravity than the spinal fluid; the 4 and the last, both alcoholic solutions, are lighter. They flow and diffuse according to their specific gravity, hence, we must consider the position of the patient and the curves of the normal canal (dorsal, lumbar), to circumscribe the area of anesthetic action and to avoid accidents.

Method of Injection—In all cases of intrapelvic and lower abdominal, perineal and the lower extremities, I proceed as follows: Cleanse the back with ether and alcohol, paint with iodine solution (5 per cent) drawing a line between the crests of the iliac bones which marks the 4th lumbar interspace. Five minutes later wash away the iodine with alcohol in order to prevent its introduction into the spinal canal because it has been proven that the least irritation of the spinal membranes is apt to produce slight meningitis according to Sicard's experiments in animals.

(a) Patient sits on the edge of the table, with the legs hanging, fore-arms crossed and facing straight forward. The spinal column must not be bent too much nor too straight. Let the patient slightly flex and extend the spine antero-posteriorly and laterally in order to facilitate the finding of the space selected. This will be found counting from the interspace already marked or by counting from the 11th dorsal process frequently more prominent.

(b) Introduce a needle 7.5 cm. long and 1 mm. in diameter, at right angle, sometimes a little upwards, in the middle line of the spine; after the skin and ligaments have been pierced you can feel the slight resistance as the dura is overcome. The fluid will run out; if not so and you are sufficiently deep turn the needle gently between the fingers and run a wire through it to prevent obstruction of its lumen.

(c) Let 4 or 5 c.c. of spinal fluid run out if you find marked pressure or if you need more intense analgesia, and introduce the solution which

must be ready in a genuine Leur's glass syringe which is kept in place so as to verify, by pulling and pushing the piston, that you have free communication with the spinal cavity.

(d) Test the patient's legs. He will feel them heavy and will begin to lose the motor power and will be gradually anesthetized in from 5 to 10 minutes. When anesthesia is obtained draw out from the spinal canal once or twice the quantity of solution injected and let the patient lie down on the operating table.

(e) If you need anesthesia in the lower abdomen and perineum you will keep the patient in a horizontal position with the head and neck slightly raised because of the specific gravity of the tropacocain solution. If anesthesia is needed in the upper part of the abdomen raise slightly the hips watching closely the appearance of analgesia, the respiration and pulse. In many instances, however, I have been able to place the patient, after injection of tropacocain solution by the technique above described, in a moderate Trendelenburg position for suprapubic cystotomy and abdominal hysterectomy without any accident. I believe this is due to the withdrawal of the surplus anesthetic from the spinal canal and the consequent weakening of the anesthetic wave in the slow diffusion of the injection in the spinal fluid.

Point of Injection—The anesthesia is more effective if the roots of the nerves that supply the field of operation are directly in contact with the anesthetic solution before it is diluted in the spinal fluid. Thus, taking into consideration the specific gravity of the solution that may flow in one or other direction, according to the position of the body, and having in mind the anatomical origin of the various spinal nerves, the injection must be introduced in the corresponding interspace and the patient kept in this or that position. For perineal operations the 4th or 3rd lumbar interspace will be selected. For operations on the leg, the 2nd lumbar. For the lower abdomen the 1st lumbar is more suitable; but I have observed that by complementing the spinal with the local anesthesia (10 or 15 c.c. in the abdominal wall), I can obtain a complete anesthesia with the spinal injection in the 3rd interspace for bladder operation, herniorrhaphy, ovariectomy and even abdominal hysterectomy for non-adherent fibroids. Local injections are also used around the cervix in vaginal hysterectomies.

For operations in the stomach, gall-bladder, liver, the injection must be given at the 12th dorsal interspace, placing the patient immediately in the horizontal position, leaving the injection in the canal or withdrawing it after 5 or 7 minutes. In the latter cases the table is provided with supports to raise the patient in the horizontal position and leave a space that will permit the needle to remain in place while the patient is on his back. In cases of upper abdominal surgery I have found Dr. Babcock's method with the light solution very convenient. He has been kind enough to allow me to observe the wonderful results obtained by him in his large practice at the Samaritan Hospital in Philadelphia.

It is very important to remember that most of the accidents that occur (frequently to those not acquainted with the method) are due to the passage of the anesthetic into the upper region of the cord in the respiratory and other superior centers. Hence, keep the patient during and after the operation in the proper position, raising the hips slightly in case of a light alcoholic solution and the contrary in case of a heavier injection (see formulas).

Apparatus—A glass Luer's syringe with a rather loose piston; capacity of 2 cc. and a needle 7.5 mm. long and 1 mm. in diameter provided with a small stylet. It is preferable to use a platinum needle and a small extra needle to be able to fill the syringe from the ampoule containing the liquid to be injected while the spinal needle is in place.

Indications—All operations of the lower abdomen and of the genito-urinary tract. In operations of the upper abdomen in cases where the general anesthetics are contraindicated.

In old patients and those who have kidney, heart and pulmonary troubles. I have found the tropacocain injection in the 2nd, 3rd and 4th lumbar interspaces always harmless.

Contraindications—In very young children, in extreme old age, in all suppurative processes, in recent syphilis, acute infections and febrile tuberculosis; in which cases it may produce a *locus minoris resistencie* and start a localization in the meninges. In very advanced arteriosclerosis, locomotor ataxia and other diseases of the spinal cord. When the spinal fluid is found turbid no injection should be made.

Accidents and Complications—I have never had a death. I have never observed paralysis or

sphincter troubles. I have only had, once, when patient was placed in marked Trendelenburg position after a heavy injection, some respiratory trouble, rapidity of the pulse and lowering of the blood pressure, all relieved after hypodermic administration of caffein, strychnin and adrenalin. I have observed headache and vomiting in a few cases and in two cases of nervous women marked and prolonged suboccipital pain for six or seven days. I have also observed in other clinics, in Europe and in America, some cases of more serious accidents, fever, paralysis of the sphincters and one case of death. But these patients were not injected with tropacocain and as far as I could understand the rules about position were not carefully observed. Besides, there have been reported to me by friends several accidents from the use of upper spinal injections and some meningeal symptoms after injections more or less irritating or, perhaps, where asepsis was not strictly preserved. It seems to me, after many years of personal practice and observation in other colleagues' clinics, that in patients carefully selected the complications can be avoided if we remember the following points: 1. Avoid irritant drugs, concentrated solutions and observe the most strict asepsis. 2. Make the spinal injection as low as possible according to the case and complement by local anesthesia, keeping the patient in a properly inclined operating table and bed during and after the operation, according to the solution employed. 3. Never choose an interspace above the 11th dorsal and if you need to inject it here proceed with care, trying to push the needle only deep enough to pierce the dura. The end of the cord is found in the adult at the superior border of the 1st lumbar and a little lower in the female. 4. Use the heavier solution with the patient in the sitting position and with a light solution make the patient lie down immediately after the injection.

Strychnin, caffein and adrenalin solutions may be used to relieve the respiratory and circulatory troubles. Acetphenetidin and sodium bromide for occipital pain. Narcotic injections of scopolamin and morphine are used once in a while in very excitable patients before the spinal injection.

As it is impossible to report the numerous cases I have observed, I will briefly enumerate the following: Several supra-pubic sections for tumors and stones; vaginal hysterectomy; ovari-

otomy; abdominal hysterectomy; nephrotomy. In several cases I have been able to repeat in the same patient spinal injections and I found the spinal fluid completely normal and no motor or sensory disturbance. Three times in a man for cystotomy for stones and tumor. Three times in a woman who had sporotrichotic sinuses in the perineal and gluteal region and five times in two years in a young woman who had gangrene of the vagina and bladder after dystocia badly managed. These operations were performed to repair a vagina and bladder almost completely destroyed.

3327 WALNUT STREET,
PHILADELPHIA.

SACRAL ANESTHESIA.*

KURT E. SCHLOESSINGK, M. D.,
FREIBURG, GERMANY.

It is not my intention to give you in this paper a review of the entire literature written about lumbar and sacral anesthesia. I think I am following the ideas of those who were kind enough to invite me in confining myself to the theory and technique of this anesthesia as practiced at the Freiburg clinic.

Before going, however, into the technique of the sacral anesthesia I believe we should contemplate for a moment the theory of spinal anesthesia in its general aspects. As regards the lumbar anesthesia, it is strange that the surgeons and the gynecologists should be divided in their opinions, the majority of the surgeons being against it whereas it is gaining more and more friends among the gynecologists. But we had to go through very bad experiences before we developed the technique we are using now.

Up to the year 1912 the Freiburg clinic had a record of over 2,542 cases of spinal anesthesia without a single death or a single paralysis of the rectus externus, and with but two cases of paralysis of respiration requiring artificial respiration. We do not believe that the choice of the anesthetic itself is of greatest importance, stovain, tropacocaine, novocain or alypin being equally effective. The most important thing for the success of the anesthesia and for its performance without danger is, to our mind, the solvent, the specific gravity of the solution, the

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freezing point of the solution, the temperature of the solution at the moment of injection and the position of the patient during and immediately after the injection.

Heinicke and L  wen have shown us that the toxic effect on the whole organism after resorption from the spinal canal is of lesser consequence. The actual danger lies in the effect at the immediate place of application. If a sufficient quantity of the anesthetic should rise up to the medulla oblongata or to the phrenicus center a consequence of such local effect would be the deadly paralysis of respiration. If we succeed in keeping the anesthetic injected into the lumbar sac away from the medulla oblongata, vital center as it is, we may be sure to avoid accidents. That is the reason why it is so very important to have the patient in the right position during the injection, to be careful that the injection be not made too quickly and to take into account whether the solution used has a specific gravity lighter or heavier than the spinal fluid. All of this is true for both lumbar and sacral anesthesia. The reasons why, in a great number of cases, we give preference to sacral anesthesia over lumbar anesthesia are the bad after effects of the latter, particularly the very bad headache of the patient, which in most cases we fail to alleviate.

The Frenchman Cathlin was the first to make injections into the extradural space for therapeutic purposes in human beings. Stoeckel was the first to introduce it into Germany in obstetrics and tried to bring about painless delivery by side-tracking the sensitiveness of the sacral plexus by means of novocain and eucain injections. Essential progress in sacral anesthesia was made through the experimental pharmacological researches of L  wen and Gross. They proved that novocain as a base is preferably used in an alkaline solution of so low a degree that precipitation of the particles which are insoluble in water is avoided. Such a solution has a much stronger and more lasting effect than the saline solution of hydrochloric acid which always acts as an acid reagent. By injecting novocain in a sodium bicarbonate solution into the extradural space, L  wen succeeded in getting a sufficient anesthesia of the region of the plexus sacralis and the lower part of the plexus lumbaris to enable him to operate on the perineum and vagina. Schlimpert of the Freiburg Frauenklinik continued these

experiments which had been started by L  wen, using at first his technique, but developing later his own technique in applying it in obstetrics and gynecology.

Sacral anesthesia in gynecology was used at first in performing "low" operations, viz., operations in the regions where the nerves are fed from the lower part of the plexus lumbalis. Later Schlimpert extended the indications for sacral anesthesia to all abdominal operations by using the so-called high extradural anesthesia. Before giving you the details of our technique, permit me to review the anatomy of the extradural space. In the region of the spinal canal the extradural space is bordered on one side by the lumbar sac, on the other side by the periosteum of the vertebral canal; below, the extradural space is closed by a solid, water-tight membrane extending between the cornua sacralia at the end of the os sacrum; above, the cavum extraduralae is closed in such a way that at the foramen occipitale the dura fuses into the periosteum of the skull.

The extradural cavity is filled with fat in an almost fluid state and penetrated by nerve trunks which are sheathed in the dural membranes and which leave the spinal canal by the foramina intervertebralia.

In the extradural cavity there is also a large net of intercommunicating veins surrounding the nerve sheath. The blood from these veins pours into the vena azygos and hemiazygos and then reaches the vena cava superior.

The extradural cavity does not provide a naturally defined space, but Cathlin has shown us that by shifting the almost fluid fat we are able to inject up to 250 c.c. of fluid. The easiest entrance to the extradural space is obtained through the membranes extending between the cornua sacralia and closing the hiatus sacralis below.

We learn from the anatomical conditions that in the practical application of the sacral anesthesia the solution injected into the extradural space can never reach the brain.

The veins which we find in the extradural space might, of course, be easily punctured by the needle, thus producing the possibility that the entire anesthetic solution is directly injected into one of the open veins. The danger of puncturing the hiatus sacralis is especially great while the woman is in a sitting posture. In that case the veins in the sacral part are tightly filled. Therefore the danger of injuring a vein is lessened if

the puncturing of the sacral canal is performed while the patient is in the Trendelenburg position; in this case the veins are in a collapsed condition and are therefore less exposed to the point of the needle.

We distinguish between two technical methods of producing sacral anesthesia, according to the effect we wish to obtain:

1. The low extradural anesthesia.
2. The high extradural anesthesia.

By low anesthesia we understand an anesthesia which shall only anesthetize those regions which are provided for by the plexus sacralis and the lower parts of the plexus lumbalis. In operative gynecology it means, therefore, the vaginal and rectal operations. The high extradural anesthesia, on the other hand, covers all operations in the abdomen up to kidney and stomach work.

TECHNIQUE.

Preliminary Narcosis—In order to mitigate the pains attendant on the sacral injection and also in order to take from the patient the unpleasant impressions created by the puncture and by the position itself, we put the patient before every operation into the "Daemmerschlaf." Furthermore, we have been able to prove, as a matter of experience, that the depth of the anesthesia and especially the relaxation is dependent on the depth of the "Daemmerschlaf." We give to our patients three hours before the operation 0.0003 scopolamine and 0.03 narcophine; or 0.02 pantopan; three-quarters of an hour after the first injection we repeat the dose. All patients receive one gram of veronal on the evening before and half a gram of veronal on the day of the operation. We reduce this dose to only half a gram of veronal on the evening before the operation in all cases where patients are strongly cachectic. If these injections are not sufficient to produce a deep "Daemmerschlaf" we give another injection of 0.003 scopolamine and 0.0015 narcophine.

Two hours before the operation we give the patient an enema into the rectum, consisting of a tumblerful of Burgundy mixed with water and sugar. The reason for this is that during the narcosis, in a number of cases, the face of the patient turns very pale. Whether that is an effect of the novocain or the arenaline we do not know. However, the vasodilaporic effect of the Burgundy wine does noticeably diminish the frequency of

this paleness, which is a secondary effect of the extradural anesthesia.

The Injection—Our injections are carried out in two different ways:

1. For the low anesthesia with the patient lying horizontally on her side.
2. For the high anesthesia in the knee-elbow position with the patient horizontal or with elevated pelvis.

We select the hiatus canalis, sacralis, i. e., the lower opening of the sacral canal, for the point of entrance, palpating through the skin by the two cornua sacralia. We palpate the processus spinosi of the sacrum down to its lowest part till we feel where they divide in a fork-like manner, and thus come to a triangular space bounded on the sides by the two cornua sacralia and offering the elastic resistance of a deep-lying membrane. The hiatus is easily found when puncturing in the knee-elbow position, as it lies in the continuation of the anal groove. It is best found by injecting one finger's breadth away from and above the anal groove. The entrance is best obtained at an angle of about 45 degrees to the body surface.

For puncture needle we use a kind of a trocar. To facilitate a proper position of the patient we use a specially constructed chair in which we can place our patient comfortably, but which enables us to swing her around into the knee-elbow position.

When we feel that the needle has passed the membrane we retract the sharp needle and advance the dull, hollow tube alone into the canal; then we lower the pelvis of the woman and see if any blood is flowing from the needle, in which case we stop the procedure because there is danger that the entire novocain solution might be injected into a vein. If there is no flow of blood we inject with a 20 c.c. record syringe about 10 c.c. of a physiologic saline solution to make sure that the needle has reached the extradural space. If it has not we see a subcutaneous swelling appear and feel a greater resistance while injecting. The needle should not be introduced deeper than four centimeters into the hiatus sacralis, the lumbar sac commencing six to eight centimeters from the closing membrane, which involves the danger of eventually perforating it.

The Solutions—We most frequently use the following formula:

R Natr. Bicarb. 0.25

Natr. Chlor.....	0.5
Novocain hydrochloricum.....	1.0
Aq. Dist.....	100.00

A short time before using the solution we heat it until it reaches for a moment the boiling point and then cool it down to 39 degrees centigrade. By using a solution of this temperature its anesthetic effect is noticeably raised and local irritations, such as we find when injecting cold solutions, do not occur. Now we add one-quarter e.e. of superanenin and one-half a gram of sodium sulphite. The superanenin is injected to produce a contraction of the blood-vessels which, in the first place, prevents a too rapid absorption of the novocain by the blood and the subsequent acute intoxication, and which, furthermore, is considered to guarantee a slower resorption, thereby producing a more continuous action.

The sodium sulphite is added to prevent oxidation, which otherwise would easily occur.

While making the injection the pelvis of the patient is somewhat elevated. Furthermore, we must take care not to inject the whole solution at once because we must always bear in mind the possibility that the point of the needle may enter a vein with the result that the whole amount of the fluid would at once get into the circulation. If the entire dose of novocain of 0.5 to 0.6 would get into the circulation of the blood at once, paralysis of the respiration would be the result. To prevent such an accident we inject first only 20 e.c. of the whole amount and then wait about half a minute. If in that time we do not see a change in respiration we can be sure that is extradural and not intravenous, because we know from experiments on animals that the effect of novocain poisoning is lightning-like. The rest of the entire amount is injected gradually within approximately one and a half to two minutes; and this injection is not one continuous, slow injection but a series of jerky spurts. This is necessary because otherwise the injected fluid would diffuse through the foramina intervertebralia into the adjacent tissues without taking effect on the nerve trunks.

For the low anesthesia we always use, as I mentioned before, a side position, injecting the solution as described above in the course of from one to two minutes. Immediately after the injection we place the patient on her back with only

a slight elevation of the pelvis. The anesthesia generally sets in at the perineum after two or three minutes.

For the high anesthesia we use the knee-elbow position, as mentioned before. We puncture and inject with highly elevated pelvis. The patient is left in this position for about five minutes after the injection. Anesthesia sets in in from five to ten minutes.

Dosage—In low anesthesia the normal dose is 0.6 gram = 60 e.c. of a 1 per cent solution. In patients weighing less than 105 pounds and in cachectic patients we use 0.5 gram = 50 e.c. of 1 per cent solution. In cases of haemorrhoids 0.4 gram = 40 c.c. of 1 per cent solution.

In high anesthesia the minimum dose is 0.5 gram, the maximum dose, 0.8. Most often we used a 1.5 per cent solution, which made it possible for us to give smaller amounts of fluid. The normal dose is 0.7 gram. For myomectomy, gall-bladder and kidney operations we used 0.8 gram.

Duration—On an average the low anesthesia lasts from three-quarters to one hour, or from one hour to one and a quarter. The high anesthesia lasts, on an average, three-quarters of an hour. If the anesthesia does not last long enough we resort to chloroform or ether, of which only very small quantities are necessary.

Quite often an extreme pallor appears a quarter or half an hour after the injection. Undoubtedly this pallor is due to a fall of the blood pressure as a consequence of the novocain action. If the right dosage has been chosen there is no danger. The pallor lasts from two to three hours, and it must be admitted that on the face of it the condition may look somewhat threatening.

Contra-Indications—On account of the fall in blood pressure one should make it a rule not to use sacral anesthesia on patients who are suffering from serious heart trouble or have a defective vascular system. The high extradural anesthesia should not be used in cases of very large abdominal tumors or in cases of pregnancy because the long continuation of the knee-elbow position with elevated pelvis might move the heart mechanically and thus produce disturbance of the heart action: The sacral anesthesia should not be used on very obese women because it is very difficult to find entrance for the injection. Also, in women over sixty, we would prefer to use the lumbar anesthesia, the after effects of which, in such cases, being very insignificant.

After-Effects—The most pleasing feature of the sacral anesthesia is that there are almost no after-effects. Post-operative vomiting almost never occurs, and that is very important in operations of the stomach and the intestines. Headaches, which we find so frequently and so persistently in the lumbar anesthesia, do not occur after the sacral anesthesia.

CONCLUSIONS.

As Schlimbert says, "The sacral anesthesia is the anesthesia de luxe." But the technique is by no means simple and it demands a number of trained assistants. The advantages are the absence of vomiting before and during the operation and, in the successful cases, the perfectly beautiful state of anesthesia with its complete relaxation. The drawbacks, beside the difficulty of the technique and of the dosage, are the fall of blood pressure and the limited duration of the anesthesia.

OPERATIONS FOR LACERATION OF THE CERVIX UTERI.

HENRY F. LEWIS, A. B., M. D.

Professor of Obstetrics and Gynecology in Loyola University.
Obstetrician to Cook County Hospital.

CHICAGO.

Fresh lacerations rarely call for any treatment, operative or otherwise, except measures to avoid septic infection. Nearly every full term labor and many premature deliveries cause more or less tear of the cervix. This is so common that one can usually make a diagnosis of a previous pregnancy by the examination of the healed cervix. The transverse slit which distinguishes the multiparous os from the round os of the nullipara is the result of the trauma incidental to labor.

Practically the only indication for repair of the fresh laceration is hemorrhage. When the tear extends far enough to sever a large branch of the uterine artery there may be severe bleeding. The blood continues even when the uterus is firmly contracted. Tampon of the upper vagina rarely suffices. One should force the uterus down by the hand externally and by volsellae on the cervix until a good view is obtained. Then one should pass sutures to unite the rent, beginning at the depth of the angle and continuing down to the end of the torn portion.

Immediate repair of lacerations of the cervix

as a routine measure is now advocated by few good authorities. So far as I know Hirst is the only writer of prominence who recommends it. In a well-equipped hospital or in the private practice of specialists, he advises examination of the cervix post-partum and repair of lacerations. His own practice is to wait until the fifth or seventh day of the puerperium; then to expose the cervix by means of flat specula and by pulling it down with volsellae; then to sew up the rents. Sometimes he considers it necessary to freshen the edges of the wounds before applying the sutures.

Let us consider objections to the practice of immediate examination and repair of the cervix. First and foremost comes the increased danger of infection. In the present day, he is a bold man who, without indisputable indications, advocates anything which demands exploration, exposure and increased traumatism of structures in the upper part of the vagina during the early puerperium. Obstetricians know full well how great are the chances of carrying infection from the never sterile vulva farther upwards into the genital tract. The longer we can keep infection away from the vagina, the cervix and the uterine cavity the better is the prognosis.

It is true that Bumm has proved that the genital tract is infected as far upwards as the internal os by the middle of the first week post-partum. By that time, however, the raw surfaces and the open lymph channels are sealed over and the wounds incidental to the trauma of the labor are well started towards healing. Surely this is an unfavorable time for adding more trauma and for opening up the channels for infection in the manner advocated by Hirst. He operates then in no sterile field, indeed, in no field which can by any possibility be made sterile, but in the presence of infection the virulence of which he has then no means of knowing. If one must operate on the cervix during the early puerperium he would best do so immediately after labor ends.

Another objection to immediate repair is because the tissues of the cervix are edematous and swollen just after labor and stitches placed there will soon become too loose to hold anything. To forestall this objection Hirst waits until the end of the first week. He escapes this unimportant Scylla to run into the arms of the terrible Charybdis of infection.

Another objection to immediate repair is its uselessness in the vast majority of cases. Why should one do an operation when nature offers great promise of doing it for him?

Herein lies the point of difference between lacerations of the cervix and of the perineum. The tendency of tears of perineum and pelvic floor is to gape because the muscles pull the edges apart. The tendency of tears of the portio vaginalis is to fall together. This is due to two factors.

In the first place, retraction of the uterus, including the untorn portion of the cervix, partly closes the cervical canal, thus bringing together the edges of the lacerations. In the second place the tubular vagina encircles the torn cervix like a splint, holding its torn edges in apposition. In other words, in the cervix the wounded tissues remain in apposition unless disturbed, while in the perineum they gape. We must remember, also, that the perineal wound becomes infected in a few hours, while the undisturbed cervical wound remains sterile for some days.

Nearly all lacerations of the cervix heal spontaneously. Many of those which heal by granulation leave a widely gaping opening with anterior and posterior lips. In most cases, however, the tissues have healed over so that no raw or granulating surfaces remain. The only abnormality is the cleft in the wall of the portio vaginalis on one side or on both sides. These conditions seldom call for any treatment because they seldom are the real causes of symptoms.

Emmett's theory that a vast number and variety of so-called reflex symptoms have their origin in irritation due to pressure by cicatricial tissue upon sympathetic nerve filaments within the scars at the upper angle of the tears is now held by few. In the epoch of gynecology in which Emmett did his great work it was generally believed that all sorts of nervous phenomena now known to be hysterical or neurasthenic were directly due to reflex irritation in some part of the genital system, usually in the uterus. Neurotic disturbances were observed, the cause was looked for in the genitals and was generally discovered.

Thereupon TREATMENTS, in capital letters, were instituted. Scores of varieties of displacements were noted, and were corrected by various pessaries or by ingenious operations. These dis-

placements served as the excuse for treatment in virgins and nulliparae. In women who had born a child lacerations of the cervix were, of course, often discovered and these served as the excuse for treatment for such women. Gynecologists of surgical bent followed Emmett and operated for these conditions. Others gave "office treatments" for indefinite periods.

It is not for us to say that these measures did no good to the patients. The psychic effects of the operations and of the treatments probably helped some. Doubtless correction of bad mental and physical habits, attention to the bowels and to digestion did more. Also in not a few cases there was actual pathology; sub-involution, hypertrophy of the cervix and endometritis due to chronic infection; prolapse with retroversion due to impairment of the integrity of the pelvic floor; retroversion with adhesions due to former or existing chronic pelvic peritonitis.

Those cases of laceration of the cervix which require operation are now considered by the best authorities to be of three kinds. First are those cases where, although there are no raw surfaces or infection, an extensive bilateral laceration seems to be the cause of sterility or of repeated abortions. Second are those cases where granulations still exist in the torn tissues, where erosions are present, or where a chronic endocervicitis seems to be perpetuated by the eversion and exposure of the cervical mucous membrane. Third are those cases where there is hypertrophy of the cervix due to chronic infection and chronic passive congestion.

Abortion or sterility may be a result of laceration of the cervix. Sometimes the scar about the upper cervix may so hinder the enlargement of the corpus as pregnancy advances that contractions are set up and abortion results. Probably more often the accompanying endometritis interferes with the nutrition of the early ovum and so leads to its premature expulsion.

Sterility may be caused by the fact that the spermatozoa do not find the normal straight passage into the cavity of the body of the uterus and so do not reach the ovum to impregnate it. It is more likely, however, that the accompanying endometritis, with the consequent abnormal discharges, destroys the spermatozoa, prevents them from reaching the ovum or prevents the impregnated ovum from imbedding itself in the decidua.

Where granulations, erosions or chronic en-

docervicitis are kept up by reason of the existence of the lacerations operative treatment is indicated. Gaping of the torn cervix exposes the mucous membrane of the cervical canal to traumatism in coitus and otherwise, to maceration by the secretions retained in the vagina and to infection.

Hypertrophy of the cervix is by far the most common reason for operation in the treatment of lacerations. Two factors contribute to bring about this hypertrophy. First is the constricting action of the cicatricial tissue at the apex of the cleft. This tissue contracts like other scar tissue and constricts the upper portion of the cervix, causing passive congestion of the distal portion. This passive congestion causes enlargement of the portio vaginalis, catarrhal disease of the endometrium of the cervix, extravasation of leucocytes into the interstitial spaces of the cervix, and general hypertrophy of its structures. The cervical glands undergo hyperplasia, often become occluded in portions and give rise to the formation of the retention cysts so often observed in such cases, the ovula Nabothi.

Chronic infection of the tissues of the congested cervix is usually present and aids in the production of the hypertrophy. As swelling increases the enlargement follows lines of least resistance. Therefore, since the proximal end of the cervix is prevented from enlarging because of constriction of the scar tissue, the distal end enlarges in mushroom shape. The hyperplastic mucous membrane becomes everted. With this eversion of the endometrium and with the abundance of the ovula Nabothi, something of a cauliflower appearance results which resembles carcinoma. The surfaces are easily injured, often bleed and continuously give rise to a mucopurulent discharge.

The role of lacerations of the cervix in the causation of cancer is somewhat doubtful. In the majority of cases of carcinoma of the cervix there is a history of former laceration. Therefore many argue that there is a close causal relation between the two; that the laceration predisposes to cancer. On the other hand, carcinoma of the cervix occurs, in the vast majority of instances, in women between the ages of thirty-five and fifty. Most women between those ages are multiparae. Most multiparae

have lacerated cervixes. Whether the chief factor is age or the laceration remains a matter for dispute.

Long continued irritation seems to play an important part in the etiology of cancer in any part of the body. Notable examples are the lip and tongue in pipe smokers, the stomach, the rectum, the breast in women who have suckled children—all localities liable to frequent and prolonged irritation and slight trauma. That the lacerated cervix, especially when there is marked hypertrophy and chronic infection of the portio vaginalis, has been subjected to prolonged irritation and slight trauma goes without saying. Therefore, to a reasonable extent, the danger of supervention of carcinoma may be considered an indication for operation in cases of laceration of the cervix.

The two main types of operation are trachelorrhaphy and amputation of the cervix. Since we have departed from Emmett's ideas on the pathology, Emmett's operation of trachelorrhaphy is less often performed. Since we are recognizing more fully the part played by foci of chronic infection in the production of various ailments we have come more to advocate removal of such foci of infection. Therefore we now amputate the chronically infected, hypertrophic lacerated cervix and find less indication for the plastic operation of repairing the cervix.

Trachelorrhaphy is adapted for those cases of laceration where there is considerable bilateral cleavage without signs of infectious infiltration of the cervical tissues. Its indications are: Repeated abortions or long continued sterility where other causes for these conditions cannot be demonstrated; presence of granulation tissue or erosions which may be the sources of infection; chronic hyperplastic endocervicitis without much eversion of the mucous membrane.

Amputation of the portio vaginalis is indicated in nearly all cases where any operation is indicated. Its indications are: Hypertrophy of the cervix with rolling out of the inside of the cervical lips; marked eversion of the mucous membrane; cystic infiltration of the cervical tissues with retention cysts of the cervical glands; infection (cervical metritis) of the tissues.

The pieces removed in either of these operations should be carefully examined for traces of carcinoma.

If one can obtain catgut which will remain holding for ten days in the cervical tissues, such is the best material for sutures. Otherwise one should employ silk-worm gut sutures and leave the ends long so that he can easily remove them.

Summary: Fresh lacerations of the cervix rarely require treatment except aseptic prophylaxis. Immediate repair is only indicated when the tear has extended far enough up the portio to sever a branch of the uterine artery large enough to cause dangerous hemorrhage. Otherwise the danger of infection is too great to justify the rather remote advantages.

Laceration of the cervix *per se* is no indication for the secondary operation. Most multiparae have more or less cervical lacerations without symptoms which can rationally be attributed to that condition.

The complications of the laceration are the only proper reasons for operating. These are: Sterility or repeated early abortions; presence of granulations, erosions or eversion of the mucous membrane of the cervical canal, especially hypertrophy of the anterior and posterior lips of the torn cervix with signs of chronic infection or passive congestion.

The etiological role of lacerations as predisposing factors in cancer is doubtful but probable enough to have some weight in the decision to operate.

The two main types of operation are trachelorrhaphy and amputation. The former is adapted for those cases where there is little or no hypertrophy or infection, the latter for cases where hypertrophy and infection of the lips of the torn cervix exists, that is, in the majority of cases where any operation is indicated.

THE MILITARY SURGEON ON THE FIRING LINE.*

P. J. H. FARRELL, M. D., M. R. C.
United States Army.
CHICAGO, ILL.

"The medical personnel of organizations must remain with them when advancing into action and during the whole course of an engagement. Accordingly the wounded will be treated where their wounds are received and the sanitary personnel will pause, if the organization is moving,

only so long as is necessary to give appropriate first aid. At a later stage of the combat, when the movement of the organization permits and when justified by the number of wounded, a regiment aid station is established and operated."—*Field Service Regulations, United States Army.*

The above paragraph very clearly outlines the duty of the surgeon when the command comes under fire. First, let it be clearly understood that the surgeon is a military officer and his first thought and best efforts must be to do every thing within his power to help win the battle that is being fought. All effort to relieve suffering humanity is of secondary importance to the one main object, victory. Having this in mind, the surgeon will attend the wounded with all the skill that he possesses and in such a way that he will be of the greatest value to his commanding officer in helping to win the battle that is in progress.

The rapid disposal of the wounded by sending them to the rear when possible, so that the command will not be impeded in its movements, is second in importance to attending the wounded on the battlefield. A large number of wounded men are apt to have a discouraging effect upon their comrades. It is all-important that as many of the wounded as possible be returned to duty, for this is frequently an essential factor in winning a battle.

Every commander is dependent on full companies to win battles. The most important duty of an army officer, line and staff, is to help win the battle that is being fought; no sacrifice is too great to achieve victory.

A high degree of discipline is essential to success in this, the most important duty that the medical officer is assigned to in time of war. Discipline, organization and efficiency are inseparable in military duty.

The special military-medical functions are dependent on good organization; they consist in the rapid application of first aid and return to the fighting of the greatest number of the wounded.

No ambulances can be used upon the firing line, in fact, rarely can litter-bearers be used. The wounded man is treated where he falls. The soldier in all modern armies has a first aid package attached to his uniform.

We must not forget that the well being of the

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wounded is the end to which medical tactics are the means, and it is essential to keep constantly in mind the vital importance of sound judgment and thoroughness in the initial surgical treatment of the wounded; a secure, protective dressing and immobilization of fractures whenever possible.

Great care is always taken to remove or cut as little of the clothing as possible to avoid exposing the wound to infection, frost bite, sunburn or insects.

The medical profession of our country are not familiar with the change that has taken place in the duties of the medical officer since our civil war. Modern firearms have extended the fire zone from a few hundred yards to a distance of 8 to 10 miles. Infantry fire in the Civil War was not effective at more than 200 yards; now it is effective at 3,500 yards, revolutionizing the work of the surgeon in an engagement. It is impossible to transport wounded men beyond the range of fire. You will use whatever cover and protection is offered in the trenches or any natural cover that the field offers. The ability to command is very important; hospital corps men, like other soldiers, must have implicit confidence in their officers to do their best work. The surgeon must expose himself to the enemy's fire if it is necessary to relieve the wounded. His greatest value to the army is the rapidity with which he can get wounded men back in action, helping to the full extent to win the battle.

I would like to say a few words regarding war. War is of value for the great leveling influence that it has upon man. The peasant and the prince will learn the best of each other and appreciate knowing each other when they have been comrades in war. The bond of friendship and confidence in another man is deeper and more sincere between soldiers who have been to war and have faced the enemy's fire than any friendship, fraternity or brotherhood that has ever existed. It brings about a friendship that is valued almost as much as life itself. Therefore, in my opinion, war is of some value. It breaks down classes, destroys the bigotry of creeds. There are no creeds on the firing line.

Why do men go to war? ' Because war today, as it has been from the earliest history of the world, is the greatest emotion that the human being can feel. No other emotion stirs the souls

of men as does the thought of war. And so long as this overwhelming emotion is felt by human beings, just so long will men continue to go to war.

The plea that has gone forth for many years throughout the world that a great military force, a powerful army and navy, was the best guarantee for peace, the present conflict in Europe shows is a fallacy. It has proven beyond the possibility of contradiction that the greater preparation for war in time of peace, the greater will be the slaughter when the war that is inevitable does come.

How will we prevent war in the future? Certainly not by great armies, great navies or compulsory military training. Education, and, if you please, religious training, is apparently the only remedy that will guarantee us peace.

Let me draw your attention to the emotion produced by the present war in Europe upon our own American women. Many thousands of our women are so stricken with this war emotion that they are working, working, making bandages, clothing, nightingales, pajamas, bloomers, etc. My experience in war is that 95 per cent of all this work and material is entirely wasted. An absurd and useless waste of time and money. Soldiers and soldiers' families, I am proud to say, refuse the world over, to be paupers and charity spongers. If you wish to help the civilians impoverished by war give money to the Red Cross Society and it will be wisely and economically used.

The results of war are many. Plague, poverty, distress and every possible form of human suffering upon one hand. Upon the other hand there are some benefits. Look at the result of the present war. A unified England with all her subjects loyal unto death. France with her royalists and republicans united. Russia with her anarchists and law breakers of a few months ago clamoring to fight for the Czar. Germany with her socialists and anti-royalists fighting shoulder-to-shoulder with the royal family. These are a few of the results that war brings about that we can well ponder over.

We have all read of the rulers of these great nations fervently calling upon Almighty God to help them destroy and slaughter the enemy. King, Emperor, Czar, have all implored super-

human aid to help in the slaughter. Apparently all of their prayers have been heard.

Again in war, death is not feared. The war emotion, or fever as it is called, is so great that men die willingly when at war. We all know that to die for one's country is to die a glorious death.

No major surgery can be attempted on the firing line. It is impossible. Dismiss any thought of doing surgery on the firing line. It is a senseless civilian dream. No probing, drainage or packing. Soldiers are young healthy men. Experience has taught us that conservative rather than radical surgery, gives the best results. You must wait until the army advances, retreats, or there is a lull in the fighting.

The greatest number of men are wounded and require first aid from infantry fire and the least number from the bayonet. The proportion killed in bayonet contact is larger than from either artillery or infantry fire. A soldier will fight with the bayonet as long as he can stand upon his feet or use his hands.

Humanitarians will tell you the chief functions of the Medical Service in war consists in attending the wounded on the battlefield, and the sick in hospital. Sanitarians will consider that prevention of disease in the field is the chief function. Both are absolutely essential; but the commander who is dependent on big battalions to win battles will expect, besides these mainly medical functions, the discharge of two others, the removal of the seriously wounded and immediate return to duty of as many men as possible.

Duty upon the firing line requires the medical officer to be active and alert, quick of perception, to stand fatigue and exposure, and who can do a maximum amount of work with the least possible assistance.

An army requires renewal of about 80 per cent of its strength in the course of a year's campaigning.

The seriously wounded cannot help win the battle that is in progress, and every effort and sacrifice must be made to achieve victory. We all remember what General Sherman said about war. The seriously wounded cannot receive attention while the fight continues. I want to emphasize this point, and also the important fact that no civilian surgeons are permitted to come within the fire zone. There is much information

that I could give you upon the valuable aid that the civil organizations render, but it is not and never will be upon the field of battle. Trained military men of the medical and hospital corps only are needed upon the firing line.

The medical corps in time of war wear the usual brassard upon the left arm. The newspapers in reporting the present war in Europe make the mistake of referring to the medical officers as "Red Cross Surgeons." They are not "Red Cross" surgeons, for the latter are never in this day and age permitted to come within the fire zone. This rule is general with all armies.

The casualty list of medical officers in modern warfare is very heavy and equal to that of officers of the line and higher than that of any other staff corps. The medical officer is exposed to the enemy's fire in the performance of his duty; in fact, all officers are. An officer cannot retain command of his men and intelligently direct their efforts, neither can he retain their respect and confidence, if he is stretched out upon the ground. There is nothing heroic or inspiring in an officer who is hugging mother earth; he must remain in an upright position, notwithstanding the many criticisms to the contrary, one eminent authority even saying: "It was grand, but not war." I am convinced that it is necessary and the plain duty of every officer. This opinion is the result of my personal experience upon a number of battlefields and duty with troops under fire upon four continents. As I look back from the safety and comfort of civil life I can see no reason to change my opinion. Better a thousand times to die a soldier's death than to live with a suspicion of cowardice hanging over you.

In our civil war 13 per cent of the wounded died. In the Franco-Prussian war 11 per cent. In our army in the Philippines 8.1 per cent died. In the Russian-Japanese war the rate was 6.8 per cent for the Japanese and 3.2 per cent for the Russians.

I hope we will soon begin to receive statistics for the present war in Europe.

It will be interesting to note if the improvement in the death rate of the wounded has continued; for the above statistics show consistent progress in military surgery during the past fifty years.

32 N. State Street.

PRELIMINARY REPORT OF RESEARCH DEMONSTRATING THE INFEC- TIOUS NATURE OF CANCER.*

HENRY W. ABELMANN, M. D.,
CHICAGO.

The animals and specimens I have to present at this time show some of the results of constant study and experimentation during the last six years. This is to be a preliminary report, for the reason that certain results of my investigations are still pending. However, my work has now developed to the point where I can demonstrate a number of diseased conditions in animals which have resulted from inoculation with cultures obtained from human cancer material.

In March, 1909, a male patient, about 40 years of age, with a diagnosis of operable brain tumor, came under the care of Dr. E. H. Ochsner, whose assistant I was at that time. After careful examination of this patient, I made the diagnosis of endothelioma (carcinoma-Ribbert) of the pleura with a metastatic growth in the brain. My diagnosis was later confirmed by the microscopic findings.

During my studies in Vienna I had the opportunity to observe a similar case. Recognizing the systems in Dr. E. H. Ochsner's patient, I made my diagnosis accordingly. I shall briefly state the case which came under my observation in Vienna, because it is of extreme interest in connection with my experimental work. A male patient, 40 years of age, was admitted to the "Allgemeine Krankenhaus" in Vienna complaining of cough, dyspnea, and a general weakness which had been coming on gradually for a period of several months. A clear straw color fluid was aspirated from the left pleural cavity. The patient's condition improved and he was sent home, his case having been diagnosed as tuberculosis of the pleura. He returned to the hospital a year later, on the day I arrived in Vienna. During the year's time a small, hard nodule about the size of a bean had developed at the site of the puncture made for the aspiration. This nodule was removed and examined microscopically and proved to be an endothelioma. I had occasion to observe this man for a period of six months until he died. A post-mortem was held. His pleura was extensively involved in cancerous

growth and no evidence of tuberculosis was found in any of his organs.

Having taken a special course in Vienna on the study of tumors, I was taught that "carcinoma" and "sarcoma" are two separate and distinct diseases. This teaching, however, did not agree with my clinical observations. My experience with cancer had forced me to look upon "carcinoma" and "sarcoma" as different manifestations of the *same* disease and also prompted me to regard cancer as truly an infectious disease as tuberculosis and syphilis. So I decided when I returned home to do research work along these lines, the findings of which I am now able to present. The animals mentioned in the cases below are the ones brought to the Chicago Pathological Society two years ago, at which time I stated that they were suffering from cancer and would succumb to the disease. Owing to the fact that the cultures were obtained from different sources, I found it necessary to classify the results of my research into five series.

The cultures used in the first series were obtained from the above mentioned case of Dr. E. H. Ochsner. I inoculated three guinea pigs with the following results:

Series 1. Cases *a* and *b*. Two of the guinea pigs remained well while the third (case *c*) extremely emaciated, died after a period of seven months. Upon post-mortem examination extensive lesions were found in the liver, spleen, retroperitoneal, mediastinal, axillary and inguinal lymph glands. The picture under the microscope resembled a tubercular condition.

Series 2. On November 7, 1909, three chickens were inoculated with cultures obtained from a metastatic growth in a lymph gland of a patient suffering from carcinoma of the stomach.

Case *a*. The first chicken was inoculated in the peritoneal cavity and died November 7, 1910, exactly one year after inoculation. The first signs of the disease were noticed towards the end of the seventh month. The chicken appeared anemic and lost in weight. In the last two months the chicken's condition grew worse, noticeable by ruffled feathers and a drooping of the tail. Upon post-mortem examination, the chicken was found to be emaciated and the abdomen was much distended. In the peritoneal cavity 8 ounces of free, clear fluid was found which coagulated soon after being removed from the cavity,

*Read before the Chicago Medical Society, June 3, 1914.

while the peritoneum itself varied somewhat in thickness in different places. The other organs, while appearing anemic, were apparently free from pathological changes.



Fig. 1. Series 2. Case B.

- a. The primary cancer.
- b. Cancer a deux.
- c. Secondary growth in gizzard.
1. Enlarged lymph node at cloaca.
2. Enlarged lymph node in thigh.
3. Enlarged lymph node in neck.

Case b. The second chicken inoculated in the pleural cavity showed difficulty in laying eggs at the end of the eighth month. The laying of an egg was always followed by a temporary paralysis of the right leg. At the beginning of the tenth month the chicken appeared anemic, lost in weight, was slow in its movements, the feathers were ruffled, the tail dropped and it ceased to partake of food. That the chicken was suffering was evident from the pinching of its eyelids. The foregoing observation prompted me in killing the chicken on December 9, 1910, one year and one month after date of inoculation. (See Fig. 1.) Autopsy revealed a primary malignant tumor 1.5x1x1 c. m., located near the liver area and springing from the chest wall behind the parietal peritoncum. This tumor caused a deep depression in the liver and in this depression, on the surface of the liver, several small isolated contact cancers (cancer *a-deux*) were found. An irregular shaped metastatic tumor 2.5x1.5x0.75 c. m. was found in the subperitoneal fat covering

the gizzard. The lymph glands in the thigh were as large as coffee beans. A few enlarged lymph glands about the size of a grain of wheat were also found in the neck. Another metastatic tumor 1.75 c. m. in diameter was found on the right side of the cloaca. This tumor undoubtedly was responsible for the difficulty in the laying of eggs and for the temporary lameness of the right leg, which followed the laying of an egg. The histological appearance of these tumors showed them to be "lympho-sarcoma." (See Fig. 3, Series 2, Case B.)

Case c. The third chicken received the injection in the lung. The first sign of disease appeared after a period of about nine months, when its comb began to look pale. At about the tenth month dyspnea appeared, which became quite no-



Fig. 2. Series 2. Case C.

- a. Miliary carcinosis of the liver.
- B. Showing where section of cancerous lung was removed.
- c. Metastatic cancer of the skin.

ticeable upon the slightest exertion. The chicken gradually grew weaker, lost in weight and finally died two years and two months after date of inoculation. Upon post-mortem examination

both lungs were found to be a solid mass of tumor. (See Fig. 2.) This explains the shortness of breath from which the chicken had been suffering. A retroperitoneal lymph gland 1.25 c. m. in diameter was found on the left side of the chest. The liver was full of secondary tumors, varying in size from a pinhead to a pea. In the skin overlying the breastbone a metastatic tumor $2.5 \times 1.75 \times 1.25$ c. m. had developed. The microscope showed these tumors to be spindle-cell sarcoma. (See Fig. 3, Series 2, Case C.) One interesting feature of the microscopical picture of a section of the lung was the growing and projection of cancer tissue into a blood vessel, demonstrating absolutely the malignant character of the tumor. (See Fig. 3, Series 2, Case C.)

Series 3. While the animals in the foregoing series were inoculated with culture obtained from

more or less puffy. The last few weeks before its death a weakness was evident, noticeable by its staggering gait and inability to stand for any length of time. The animal would shake its head as though suffering from dizziness. Upon post-mortem examination the chicken was not found to be emaciated, but a thick layer of panniculus adiposus and a fair amount of dark yellow fat in the abdominal tissues was found. Microscopical examination of the internal organs revealed nothing abnormal except their anemic appearance. Food was found in both crop and stomach.

Case *c*. The third chicken is still living, but sickly in appearance. Tumors are developing between its toes.

Series 4. This series of animals, consisting of three rabbits and four chickens, were inoculated March 9, 1911, with cultures obtained from a

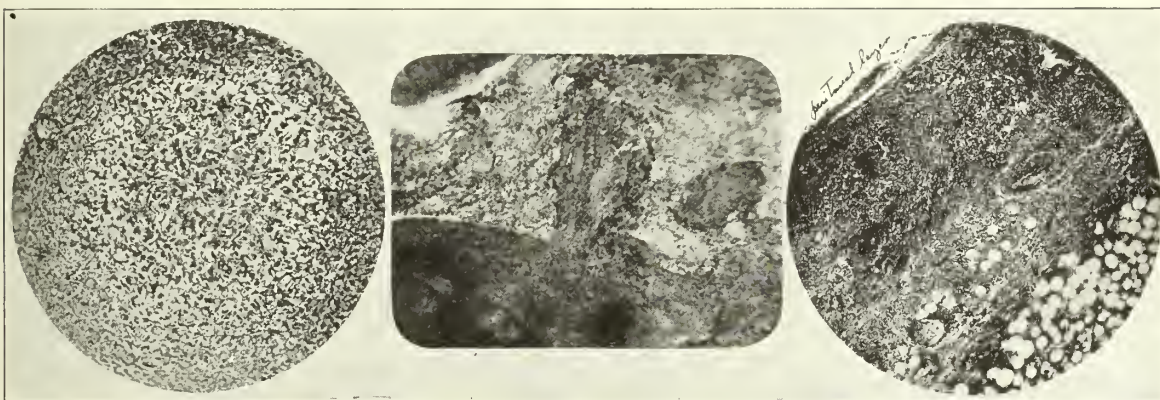


Fig. 3. Series 2. Case C.
Miliary focus of metastatic cancer
in the liver.

Series 2. Case C.
Cancer growing into the lumen of a
blood vessel.
Series 2. Case B.

Subperitoneal fat almost completely
replaced by cancer tissue.

human cancer, the three cases in this series will show the results of inoculation with culture obtained from a "lympho-sarcoma" in a chicken of Series 2.

Case *a*. The first animal received inoculation in the peritoneal cavity and died after a period of five months. The post-mortem examination showed practically the same results as found in Case *a*, in Series 1.

Case *b*. The second chicken died eighteen months after receiving the inoculation in the peritoneal cavity. Autopsy revealed very different conditions than were noticed in the foregoing cases. After the expiration of seven months the chicken's comb began to look pale. The eyelids were of a light yellow color and appeared

patient of Dr. A. J. Ochsner, who suffered from sarcoma of the testicle.

Case *a* and *b*. The first and second rabbits died of anemia November 1 and 2, 1911, respectively. Post-mortem examination revealed nothing abnormal except the anemic condition of the internal organs.

Case *c*. The third rabbit died November 19, 1911. A hard tumor $3 \times 2 \times 2$ c. m. was found in the gastro-hepatic omentum. A second tumor $2 \times 1.5 \times 1$ c. m. had developed in the lung. The microscopic picture is not that of a malignant tumor, but of a chronic inflammatory condition resembling tuberculosis.

Case *d*. The first chicken died November 7, 1911, anemic and emaciated. The internal or-

gans were normal except for their anemic appearance.

Case *e*. The second chicken of this series died three years after inoculation on March 6, 1914. The animal seemed perfectly healthy until about two months before its death, when anemia developed, noticeable by the pale and sickly appearance of the comb. About one week before its death its desire to eat seemed to have vanished. Autopsy revealed an enlargement of the abdomen due to about 6 ounces of clear, straw-color fluid which was found free in the peritoneal cavity. A retroperitoneal tumor about the size of a small hen egg was located in the posterior wall of the abdomen near the cloaca. The microscopical examination showed this tumor to be a "lymphosarcoma."

Case *f*. The third chicken died March 26, 1914. The symptoms were about the same as noticed in the last mentioned case. Upon post-mortem examination, however, only three drachms of clear fluid was found in the abdominal cavity. The gall bladder was enlarged to about twice its normal size and filled with a clear straw-colored mucus. The fundus of the gall bladder was thickened and hard. In the liver was a metastatic tumor about 1.5 c. m. in diameter. In the right inguinal region six to eight nodules about the size of millet seed had developed. A section of the gall bladder examined under the microscope showed *carcinoma*, although inoculated, as you will recall, with cultures from *sarcoma*.

Case *g*. The fourth chicken is still living and of a sickly appearance.

Series 5. On September 10, 1911, two chickens were inoculated with cultures obtained from cancer of the skin (epithelioma) removed from the thigh of a patient of Dr. M. Schulze.

Case *a*. The first animal died the second day after injection, apparently from injury received from the needle.

Case *b*. The second chicken died July 27, 1913. It was apparently well until about two months before its death; anemia and a profound weakness were the most striking symptoms. The feathers having been removed, the abdomen was found to be very much enlarged, due to a uniform enlargement of the liver to about three to four times its normal size. The spleen also had

increased in size. The animal was not especially under weight. The microscopic diagnosis of the condition was "leukaemia."

These are all the cases I have to offer at this time. Summing up the results of my experimentation carried to this point, I find that:

1. That there is a difference between cancer cell transplantation and cancer infection. (*a*) With the transplantation of a malignant tumor the cells simply continue their growth as a piece of the original tumor. With cancer infection, however, the specific micro-organism is responsible for the development of cancer and here the infected animal's own tissue cell undergoes a malignant change. (*b*) In inoculating with the cancer germ any type of this disease is liable to develop. (See Case F, Series 4.)

Whereas with a transplanted cancer the same type of tumor will develop as has been transplanted. (*c*) In infected animals there is no telling where a tumor will develop. With transplanted cancer, however, a tumor will grow at the site where the grafting was performed. (*d*) With cancer infection, animals will take the disease irrespective of species, whereas with cancer cell transplantation animals of the same or closely allied species have shown results. (*e*) With cancer infection usually metastatic tumors develop, whereas with cell transplantation secondary growths very rarely occur. (*f*) Time is a great and important factor with infection, as manifestations of the disease appear months and even years after inoculation (henceforth the impossibility of diagnosing cancer in its early stage in human beings). Whereas with transplanted cancer a tumor usually starts to grow as soon as it is grafted.

2. Certain infected animals never developed cancerous tumors (*carcinoma* and *sarcoma*), but developed conditions that strongly suggest the probable similarity or possible identity of conditions found in human beings, namely, pernicious anemia and leukemia, others die from a condition simulating tuberculosis.*

I am indebted to my father, Mr. H. A. Abelman, and to Mr. G. Hake for assistance in this work.

6152 Kenmore Avenue.

*See "Heredity in Cancer," ILLINOIS MEDICAL JOURNAL, April, 1911.

ON THE DIAGNOSTIC WORTH OF LABORATORY DATA IN GASTRIC CANCER.*

(An Analysis of the Finding of 700 Cases, Operative and Pathologically Demonstrated.)

FRANK SMITHIES, M. D.,

Gastro-Enterologist to Augustana Hospital; Former Gastro-Enterologist to Mayo Clinic, Rochester, Minn.

CHICAGO, ILL.

There is no known medical cure for gastric cancer. Operative intervention holds forth the only possible hope for individuals affected with this malady. Statistics from surgical clinics of the greatest experience indicate that *one* out of every *nine* patients operated upon dies within 6 months following laparotomy; *two* out of every three are dead within *three* years, and that but *one* patient out of *five* lives longer than 5 years following the most radical resection.

The limitation of life of patients with gastric cancer depends not so much upon the size of the local growth as upon the extent of peri-gastric gland involvement. While it is roughly true that stenosing gastric neoplasms favor the cachexia from cancer poisoning, the problem of the cure of gastric cancer is eminently that of detecting malignant processes before there is an appreciable degree of peri-gastric lymph-gland invasion.

That this is a difficult task for the clinician is admitted, inasmuch as no one has yet shown at what rate or in what sequence, gland involvement takes place in a given case or in groups of cases. Also, no one has ever demonstrated the actual beginnings of primary gastric cancer pathologically. Further, the most experienced pathologists have not been able to show us what bio-chemic or histologic peculiarity of ulcerated gastric mucosa turns a chronic, calloused ulcer from its normal steps of repair into a progressive process of a malignant nature, with metastatic power. It would seem that in our woeful weakness diagnostically at this point, we have the explanation for much of our therapeutic helplessness.

Yet complete pessimism is not wholly warranted. Twenty-five years ago the operative mortality in cancer of the stomach was stated at 72 per cent. by Haberkant and under the most favorable conditions as 54 per cent. by Billroth.

The exceptional case lived longer than three years. The present day statistics of Mayo and Ochsner exhibit less than 15 per cent operative mortality, with a fair lease of life in comparative comfort to those who survive technical surgical procedures. This splendid advance has been made by the surgeon largely as the result, first, of earlier, clinical diagnosis of primary gastric cancer; second, of the realization of the frequency with which chronic, calloused gastric ulcer becomes malignant, or to put things more strongly, the realization of the fact that the group of cancers that can be given help, presents clinically the picture of gastric ulcer itself—that is, the operation has been performed on the “suspicion” of the existence of gastric cancer; and last, the experience gained in properly interpreting laboratory data in the light of modern surgical pathology. It is to the significance of the last factor that we would call attention.

For twenty-five years the laboratory diagnosis of gastric cancer has been interpreted in the light of the classic work of Osler and MacCrea upon 150 cases.¹ Many of their cases were neither surgically nor autopsically proven to be cancer of the stomach. Practically all were late or terminal affections. Laboratory data in their report consisted mainly in the examination of test-meal acidity and the recording of numerous non-related experiments in physiologic chemistry. The momentum of this excellent treatise has carried forward almost to today the impression that “laboratory data” in gastric cancer means diagnosis only of the hopeless tumor—a tumor which is readily palpated in a few seconds. However, Osler himself has recently recognized the state of affairs and states that much that makes up present day text-book knowledge of the disease should be consigned to the scrap-basket.

It is with a hope of contributing a few facts to the readjustment of our conception of what diagnostic significance laboratory data have with respect to gastric cancer that I submit a brief report of the examination of 700 operatively and pathologically proved cases of the disease from my recent service at the Mayo Clinic and my present records at Augustana Hospital.

Under the term Laboratory Data, I would mention particularly:

1. The information derived from the examination of gastric extracts after test-meals.

*Read before the German Medical Society, Chicago, March, 1914.

2. The information derived from the examination of the stools.
3. The facts shown by blood examination.
4. The facts learned by x-ray studies.
5. The significance of surgical pathologic reports.

1. *The information derived from the examination of gastric extracts after test-meals.*

We have used the double physiologic test-meal to which I have previously drawn attention. The day previous to the patient appearing for his test-meal examination, he is given at 4 p. m., 2 ounces of castor oil. At 6 p. m. he receives a moderate sized meal of mixed food. This meal is given in all cases except those where the history shows severe recent hemorrhage, marked obstruction of the cardia or where the pain from the ingestion of food is very severe. At 9 p. m. the same evening the patient is instructed to swallow 20 raw raisins, swallowing the skins as well as the pulp. If the history does not suggest a retention, on the following morning at 8 a. m. the patient is fed an Ewald breakfast and the stomach emptied in the usual manner at the end of 50 minutes. If the emptying of the stomach at this time shows retention, the secretory power of the stomach should be later determined by washing the stomach clean with normal salt solution and one hour afterwards feeding an Ewald breakfast.

Color. In but 18 per cent of the cases was the removed material or the vomitus dark brown or coffee colored. Many extracts were cream, dark green, yellow or bright red. Where coffee colored contents were noted, there was in 96 per cent a hopelessly extensive process.

Odor. In 65 per cent. the vomitus or test-meal extracts were rancidly sour, an important distinguishing point from the yeastly odor of simple fermentation occurring in benign gastric retention—as ulcer.

Motility. The physiologic motor meal was administered to each of 700 patients.

A twelve hour interval was chosen which eliminated the effect of spasms upon retention of food in the stomach. It was found more satisfactory than the estimation of retained food at the end of a six hour period. When food is kept in a stomach for longer than 12 hours and this retention is persistently demonstrated as a content finding, there is always mechanical inter-

ference with gastric emptying power. There may or may not be gastric dilatation coincident with this obstruction.

Twelve hour retention was demonstrated in 504 or 72 per cent. In other words, nearly three out of every four cases coming to the clinic showed some grade of interference with the stomach's emptying power, irrespective of the location of the neoplasm in the stomach wall. This interference with free emptying was almost 10 per cent. more frequently noted in the type of cancer that had followed upon a partly stenosing ulcer, with subsequent dilatation of the stomach, than it was in the cases of so-called "primary" gastric cancer.

Acidity of Gastric Extracts. Gross returns: In but 54 per cent. of the series of test-meals, was free hydrochloric acid absent. In nearly 46 per cent. free Hel ranged from a trace to as high as 120. One out of every five cases had free Hel between 20 and 50.

Total acidity ranged above 50 in about 20 per cent. and *combined acid* and acid salts were below 50 in nearly 90 per cent.

These gross returns warrant a more detailed classification because by so doing the diagnostic significance of acidity of gastric extracts is more evidenced. I would classify the cases according to exhibition of primary inoperable cancer; primary cancer which had subsequently ulcerated and gastric ulcer of the simple type which had later become malignant.

Acidity in inoperable gastric cancer. These numbered 436. The average free hydrochloric acid estimation was 7.46. The average total acidity was 28.3. The average combined acidity was 21.0. Lactic acid was present in 62 per cent. of this group.

Acidity in ulcerated primary cancer. So far as could be ascertained, there were 65 of this type. The average free Hel was 2.0. The average total acidity was 34.0. The average combined acidity was 31. Lactic acid was demonstrated in 63 per cent. of this class.

Acidity in gastric ulcers that had undergone malignant change. These numbered 199. The average free hydrochloric acid estimation was 33.4. It ranged from 4 to as high as 120. The average total acidity was 51.0. The average combined acid was 16.0. Lactic acid was present in but 23 per cent., or in approximately one case out

of five. In 44 instances, serial meals were obtained in this group of cases. These frequently extended over a period of five years. In all but two instances the later meals showed progressive diminution of the free hydrochloric content with increase of the combined acid as clinical evidences of malignancy appeared.

Emphasis is to be especially placed upon the necessity for careful interpretation of test-meal returns on this last group, for this is the class in which gland involvement is least evidenced, and in which the best surgical results are obtainable. The figures returned frequently resemble those shown in simple, chronic, peptic ulcer. However, in a given case, the progressive lowering of free hydrochloric and a corresponding increase in combined acid, associated with gastric motor insufficiency (3 out of 4 cases), is the danger signal so far as improvement by medical treatment is concerned. These cases should be promptly advised to submit to laparotomy, on "suspicion" of malignancy, and not as "cases of chronic catarrh of the stomach" carried on until free hydrochloric acid has disappeared from the gastric extracts simultaneously with all hope of surgical cure or relief.

Lactic acid. In the primary cancer group, this or other organic acid was demonstrated in 54 per cent. of the gastric extracts. In the group of cancers seemingly following a chronic gastric ulcer, lactic acid was present in 42 per cent. To summarize, in only about half of the cases of gastric cancer is lactic acid demonstrated, and where it is present, operative procedures are rarely successful. More than 65 per cent. of cases showing lactic acid revealed free HCl absent and in 75 per cent. the demonstration of lactic acid was associated with interference with the stomach's emptying power.

Blood. Test for occult or altered blood by the benzidin or the guaiac methods, were positive in 72 per cent. of the total test-meals of the series. It was a somewhat more frequent finding in those cases where ulcer had preceded than where such disease was clinically primary.

Special tests. These were carried out on but about one-third of the gross test-meals. Of the more important we would call attention to the glycytryptophan test, the Wolff test for soluble albumin and the estimation of the formol index. We have not sufficient observations at hand upon the Abderhalden technique to warrant report.

a. Glycytryptophan test. We carried out this according to the writer's modification of the Neubauer and Fischer technique in 141 consecutive cases. It was positive in 40 per cent.

b. Wolff test for soluble albumin. In the last 3,750 patients presenting themselves for test-meal examination of gastric function, there were 747 instances where gastric extracts showed achylia or were associated with conditions likely confused with malignancy.² These gastric extracts were all tested for soluble albumin by the Wolff-Junghans quantitative method. Records were kept of the association of the results of this test with other test-meal and clinical findings. When the tabulations were completed the operative or clinical diagnosis were entered on the sheets. In 78.4 per cent. of the cases it was possible to obtain positive diagnosis by operative procedure.

Results. The gross results of our work are as follows: Of 747 gastric extracts of the class described above 318 or 42.6 per cent. gave 200 to 400 units of precipitable albumin; 112 or 15.7 per cent. exhibited 160 units and 317 or 42.4 per cent. showed less than 100 units, or were negative. In this grouping 71.5 per cent. of the gastric extracts were from cases showing some degree of gastric retention.

Consideration of the Wolff test in the proved cases of cancer. There were 215 of these in this series. In 141 or 65.1 per cent. the test was positive in 29 cases (13.4 per cent.), the test was suspicious. Combining the returns it is evident that 170 or 78.5 per cent of the proved cases of gastric cancer gave undoubtedly positive or suspiciously positive Wolff-Junghans's test. In 45 cases of 21 per cent. the test was negative.

Gastric extracts from 15 cases of ulcer carcinomatosum were tested. In 11 instances (73.3 per cent.), the test was positive; 3 or 20 per cent. were suspiciously positive. In other words, of the 15 cases of malignant gastric ulcer, 14 or 93.3 per cent. gave either positive or suspicious Wolff test.

Combining the results from the cases of frank gastric cancer and those of cancerous ulcer, it is seen that of a total of 230 cases, 184 or 80 per cent. returned positive or strongly suspicious Wolff tests.

Without going into further detail of our observations with this test, we would state that it

was a more constant finding than absence of acidity, the presence of lactic acid or positive glycytryptophan test. It was approximately as constant a finding as tests for altered blood and the demonstration of motor insufficiency. It was not so constantly manifested as organisms of the Boas-Oppler type or increase in the formol index. In extra-gastric malignancy and in gastric syphilis the manifestations of the test were inconstant. In the differentiation between malignant and non-malignant achylia the Wolff test, when interpreted in connection with other clinical and laboratory data proved of considerable value. Positive manifestations were rarely obtained in the achylia of primary anemia, simple achylia gastrica and the simple achlorhydrias where such were unassociated with gastric motor insufficiency. Simple gastric and duodenal ulcers when accompanied by pyloric stenosis or marked dilatation of the stomach gave confusing responses to the Wolff technique.

Estimation of the formol index. Woodyatt and Jacques³ have recently pointed out that in gastric cancers an ereptic ferment as estimated by the modified formaldehyde titration method suggested by Sorenson and Schiff⁴ can be demonstrated in excess in the gastric extract that has been passed through a Berkefeld filter. Our experience with the original procedure is briefly summarized as follows: The average formaldehyde index of 57 cases of proved gastric cancer was 21; the average index of 40 cases of benign gastric ulcer was 10.8 and the average index in 75 cases of duodenal ulcer was 11.9. In 17 cases of achylia gastrica, the average formaldehyde titration index was 14.1. Of 10 cases of pernicious anemia, 14.5 and 5 cases of cancer of the liver, 4.25. It would appear that in some instances, the estimation of the ereptic power of gastric juice toward peptone solutions is of some value when taken in consideration with clinical history and symptomatology.

Significance of the microscopic examination of removed test-meals. We have examined such in the last 158 cases of gastric cancer, by the colored agar method of staining which I suggested some three years ago.⁵ We find the microscopic characteristic in nearly 94 per cent. of cases. In this high percentage Oppler-Boas bacilli were found. Yeasts were associated in but 30 per cent. Sarcines in rather more than 10 per cent. This

malignant, or bacillary type, of stained smear is sharply in contrast with the simple fermentation type of contents obtained from non-malignant ulcer cases associated with gastric stagnation. When Oppler-Boas bacilli are present, free Hel is *absent* in more than 80 per cent. of cases, and an abdominal mass or nodule may be detected in three out of four cases. This is a most useful diagnostic observation for differentiation between retention due to cancer and that due to ulcer or extra-gastric tumor.

Stool examination. Ninety-six per cent. of gastric cancers are of the medullary type. These have a tendency to seep blood constantly. Most chronic ulcers bleed intermittently, until they assume malignant character. In 78 per cent. of the gastric cancers, in my series, in which the stool was examined for blood, by the guaiac or the benzidin tests, it was positive. The stools should only be tested after meat-free diet three days, and the patient should be on milk diet the day that the specimen is secured. Sources of blood other than from the stomach must be excluded, and the reaction often given by hemostatic medicines administered by mouth, must be eliminated. Given a chronic gastric ulcer which shows constant evidence of blood in the stools, malignant change should be strongly suspected and operation urged.

Oppler-Boas bacilli can frequently be demonstrated in the stools, but when such are found other more easily elicited signs and symptoms of cancer are not lacking.

When gastric cancers have extensively involved the pancreas, glycosuria or definite diminution in the pancreatic ferments may be demonstrated by such methods as those of Gross-Fuld and Wohlgemuth.

Anemia. The average hemoglobin estimation of 380 of our cases was 72 per cent. It was rather lower in the cancerous ulcers than in cases of primary malignancy.

The average red count was 3,620,000. The average white count was 11,200. Digestion leucocytosis was frequently absent, but not constantly so. The differential count usually showed nothing more marked than a small celled secondary type of anemia. In 19 cases, an excess of eosinophiles might have supported the contention of those who favor the parasitic etiology of cancer. In 7 cases, the presence of nucleated

red cells had led to previous diagnosis of pernicious anemia.

Value of x-ray examinations. My observations include more than 1,600 consecutive stomach examinations, of which 87 were upon cases of gastric cancer. The examinations were conducted with standard technique by both fluoroscopic and plate methods.

In about 10 per cent of cases, the fluoroscope and plate gave the diagnosis. In more than 82 per cent of our cases, malformation of the normal stomach outlines, with alternation in the peristaltic rhythm were shown by screen or plate examination. Frequently the x-ray examination was of crucial value in locating physically inaccessible tumors, viz.: high on the lesser curve at the cardia and the fundus. In cases of posterior wall growth, we frequently got a confused picture. In the differentiation between gastric and extra-gastric tumors, the screen examinations is often of great value.

The early cases of gastric cancer, or cancerous ulcer rarely show anything typical by x-ray examination. When x-ray plates or fluoroscope shows malformation of the stomach's outline from cancer, other evidences of the disease are not usually lacking. The greatest value of x-ray examination of the stomach is that of sometimes definitely localizing the malignant process and of thus indicating just what group of cancers of the stomach may give prospects of operative relief.

The Surgical Pathology of Gastric Cancer. Adenocarcinomata were demonstrated in more than 96 per cent of instances; colloid carcinomata, 5 times; fibromata, 4 times and sarcoma once. In 27.4 per cent of the cases, ulcera carcinomatosa were shown. These may have been primarily such, had formed from previous chronic gastric ulcer, or may have resulted from surface proteolysis of preceding cancer. It is often impossible to say, without clinical history or test-meal findings, whether an ulcer carcinomatosum developed *as such*, or whether it is a secondary result in primary gastric cancer. MacCarty⁶ has emphasized the difficulties of accurately differentiating between the forms of hyperplasia connected with gastric ulcers. He suggests from a vast experience, that hyperplasia is a forerunner of malignancy, that hyperplasia varies in degree, that cancer is malignant hyperplasia,

which also varies in degree, and that some degrees of both processes are indistinguishable, histologically.

122 S. Michigan Ave.

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THE EARLY DIAGNOSIS OF GASTRIC CARCINOMA.*

OLNEY A. AMBROSE, M. D.,
ST. LOUIS, MO.

The above subject has been chosen for my paper in the main for two reasons: First, on account of the great effort that is being made by investigators to find some method or methods by which a positive early diagnosis can be made; and secondly, my own personal efforts in the matter. It would not be possible for me to go into every detail of this subject, as it is entirely too voluminous. I do want, however, to call your attention to some features that I think are worth while and will be of more than passing interest to you, and to also point out some of the fallacies in our present day diagnostic methods of this disease.

I will not attempt a discussion of the theories of the cause of carcinoma, as you well know that we have not settled as yet on anything definite. Statistics, at best, are very dry and uninteresting, but it is necessary for me to say something along that line.

The stomach is more frequently affected with carcinoma than any other organ in the body, comprising about one-fourth of all cases, and sad to say, the frequency of which is on the increase. According to Welch, in one per cent of all deaths after the age of 20, cancer is the cause. It occurs in men a little more frequently than in women. It is, as a rule, a disease of late middle life, but has been observed as early as the 10th and 18th years. As was formerly thought cancer was a very rare disease under 30, but we find today, on the contrary, that it is very frequent about the age of 30, especially in men who have suffered for some time with so-called hyperacidity, and it is at this age where we so frequently fail to recognize it in its early stage.

*Read before the Egyptian Medical Society, June 12, 1914.

All gastric carcinomata start as a very small nidus, and depending upon whether it is primary or secondary, grow either rapidly or slowly. By primary, I mean where the growth originates in the stomach as a cancer *per se*; and secondary, where it arises from the edge or base of an ulcer. The four types of cancer found in the stomach are adenocarcinoma, medullary, scirrhus and colloid. The most frequent location for these growths are in the following order: Pylorus, lesser curvature and cardia. Likewise the same state of affairs exists with gastric ulcer. Consequently, the great necessity of recognizing and curing all gastric ulcers in their incipiency. The Mayos have shown that 75 per cent of ulcers of the stomach are malignant, and I am firmly of the opinion that future investigation will show the percentage to be even greater than this, although I am well aware of the fact other authorities do not consider the percentage so high.

I desire now, in order to lay the foundation for my statements a little later, to first call your attention to the usual symptoms and methods of diagnosis as set forth in the average text-book on medicine and by whose authority the man in the general field is directed, and it is he to whom the great majority of all patients first apply.

Let us now take the most important symptoms and findings that we are in the habit of relying upon. We do not think of cancer unless the individual is past 30. This is the age at which malignant ulcer is frequent. Sudden loss of appetite with a pronounced distaste for meats of all kinds is, as a rule, a late symptom. Vomiting of blood, if due to malignancy, generally means obstruction and is a late symptom. Pain which is more or less continuous in the epigastrium, does not tell you much, as it is a symptom of numerous gastric conditions. Vomiting of vile smelling coffee-ground material, etc., always is a late symptom. Symptoms of stagnation, belching of gas, distress after eating, if due to carcinoma, are always late. Secondary anemia and cachexia are never early symptoms. A growth palpable in the epigastrium, if malignant, is always a late symptom. This growth, however, may be a syphilitic gumma or a calloused ulcer. Benign growths do not interfere with the

general health of the individual until they have produced marked obstruction. Loss of weight is never noticeable early, but would be a valuable symptom if systematically considered, for the reason that the individual who has a steady decline in weight in conjunction with a digestive disturbance should be looked upon with suspicion. Hemorrhage is a late symptom and is only seen in 50 per cent of the cases.

Gastric Findings—Test meal shows poor digestion with small return. Lactic acid present, with Oppler-Boas bacilli; free hydrochloric acid absent. These findings are only present after obstruction has taken place, for the reason that lactic acid and the bacilli above mentioned are products of stagnation and decomposition found late in the disease only. The triptophan and Solomon tests are only of use when positive, and whether or not they are ever of any use in making an early diagnosis is questionable. To summarize them, the great majority of the findings that we have relied upon avail us but little. What, then, can we do in order to detect malignancy of the stomach early enough to be of benefit to the sufferer?

First: I would insist that all calloused ulcers be excised as a matter of prevention, never relying merely upon a gastro-enterostomy to drain the stomach, as a drainage operation without the removal of the cause would avail us but little.

Secondly: That we impress our stomach patients with the great necessity of obtaining a cure in the beginning of any so-called digestive disturbance, and the further admonition that they must remain under observation a sufficient length of time under any treatment you may give them, whether it be medical or surgical, in order that you may carefully observe their progress.

The history of the individual, if carefully taken, is the first thing we rely upon in correlating the early findings. Any one past middle life who tells you that he has never had any stomach trouble until a sudden so-called indigestion came on, and which he is having great difficulty in relieving—that he has been in perfect health up to this time; or, on the other hand, that he has been having trouble with his stomach off and on for some time, that the condition is rapidly growing worse even under his physician's direction, and that he apparently is receiving no benefit or relief—such statements should never fail

to arouse your suspicion of malignancy. Further, an individual who complains of a stomach condition which does not respond to proper medical or dietetic treatment within six weeks' time should be looked upon as suffering with an organic stomach lesion until proven otherwise, for, as a rule, with such a state of facts as I have noted, you will find that you are dealing with an organic disturbance and not a functional one, and the first thing you should always think of is malignancy.

In respect now to the chemical findings in the early diagnosis, we first make repeated gastric analyses in all patients that arouse our suspicion, as a steady decline in the hydrochloric acid content, free and total acid, is highly suspicious. This is noticeable even before the clinical symptoms tell you anything. Every patient is always prepared for the examination for occult blood in the feces. For three days prior to your expected examination, he is allowed no meat of any kind, no drugs, and is advised to use a tooth brush very lightly. His mouth and teeth are examined to see whether or not he has bleeding gums, and if this is the case, these must be treated before you can expect your test for occult blood to be of any value. We are in the habit of making use of at least three tests for blood in the feces and gastric contents, in order that one may be a check upon the other. The continuous finding from time to time of occult blood in the stool is a very early symptom. Further, we give the patient an Ewald test meal which is extracted in one hour in the following manner: A tube with two lateral openings at the end, without any other lubrication than the saliva, is introduced very rapidly in order to prevent retching, and only a small amount of the test meal is extracted, as any attempt to obtain it all will cause your patient to vomit. This is examined for blood, pus, bacteria and quantitatively for hydrochloric acid. Pus is not a product of a normal stomach, and when found, should always be looked upon as a pathological condition. In order to make the examination for pus and bacteria of real value we introduce into the stomach a normal salt solution and withdraw it in twenty minutes, examining same microscopically.

Knowing that cancer always ulcerates early, and the finding of cancer cells being, of course, positive proof of malignancy, a new test has been devised by Loeper and Buret, two French-

men, whereby they endeavor to obtain cancer cells in the wash water from the stomach in the following manner: Into the fasting stomach through a stomach tube a quart of physiologic salt solution is poured. The stomach is massaged for a few moments and this solution is then immediately withdrawn. This is centrifuged and repeated examinations made microscopically for the cancer cell. In my opinion this test is thoroughly worth while, and if done systematically, is a big step in the early detection of carcinoma.

The x-ray has been the biggest factor in enabling us to make an early diagnosis of malignancy. We are in the habit of examining every individual who presents himself with the fluoroscope in order to observe the working of the stomach from time to time, and I might say that this has been so perfected that we are now enabled to study the stomach without any danger to either ourselves or our patients. If it becomes necessary, we make serial radiograms in order to study the picture at length. We know that the normal stomach has certain definite conditions and movements and that its normal emptying time should be six hours or less; that it should empty itself with a slow, deliberate, peristaltic movement; that a normal stomach has a wide range of position in so far as its body is concerned, but that the slightest interference with the position of its pyloric end always means something to us. Our technique is to give the patient a meal of insoluble barium sulphate and first examine for five or ten minutes fluoroscopically. If the gastric analysis had shown that there is a diminution of free hydrochloric acid we notice that the stomach empties rapidly and without severe peristaltic movement, providing that there is no obstruction at the lower end. It has been proven that it is the hydrochloric acid which activates the opening and closing of the pylorus. We therefore make our gastric findings a check on our x-ray findings in the following manner: If, at the end of six hours we see fluoroscopically a normal stomach shadow with a small amount of barium still in the stomach and a gastric analysis shows absence of hydrochloric acid, we make a diagnosis of a small pyloric carcinoma.

The above is used merely as an example as we make use of a number of what we term "Symptom Complexes" in arriving at a diagnosis of early carcinoma, as well as gastric and duodenal

ulcer. Time will not permit me to go into the details of all these different conditions. I wish to say, however, that 85 per cent of the organic lesions of the gastro-intestinal tract can be diagnosed by the x-ray method.

In conclusion, I will say that if we are to arrive at an early diagnosis of malignancy, we must apply all the known methods, making one a check upon the other, and under no consideration to allow ourselves to rely upon any single method. If we can come to an early conclusion, we know that surgical measures will place our patients in a position to make a complete recovery, and even if not a recovery, it will prolong their lives and make them comfortable, a thing that has not been done in the past. There is no medical treatment with which we can offer a cure for malignancy. We can, however, work along preventive lines, and the time is not far distant when the public will be educated to apply early to their physician for all stomach conditions just the same as they have been educated to apply early when they are threatened with tuberculosis. When that time does arrive, we will see carcinoma on the decline instead of on the increase.

Lister Building.

ANTI-SPITTING SIGNS AND THE CONTROL OF EXPECTORATION.*

ADOLPH GEHRMANN, M. D.,
CHICAGO, ILLINOIS.

Laying aside all that pertains to disease by direct transmission of bacteria through the medium of mucus from the respiratory passages—the possibilities of which we recognize—the spitting nuisance is a subject for urgent sanitary consideration.

Whenever a newly-appointed health officer assumes the duties of his office, he is likely to consider a crusade against spitting as one of the features of his administration. Often a plan is laid out and entered upon with vigor, but soon falls flat because little is accomplished outside of the immediate agitation and warnings for a few individuals.

The care of the human menagerie presents two fundamental requirements; *first*, the essentials of food and feeding, and, *second*, the removal of

excrement. The most distinctly animal characteristic remaining generally in the human is the slight regard that he shows in the disposition of expectoration and excretions from the mouth and nose. The fulfillment of other functions is so far under mental control that they do not, except in an isolated way, present to sanitation problems at all analogous to those occasioned by the expectoration function, as it may occur in any group of individuals. In view of our present state of knowledge regarding the expectorate, the subject of its proper disposal is the most colossal problem, and the most far-reaching improvement to be achieved by modern hygiene and sanitation.

If we consider expectoration from its scientific aspect, we see a function and not a habit. It may have the character of habit at times, but fundamentally it is an essential activity of existence. Like all functions, its accomplishment is a necessity and will not permit of suppression. The fact that man generally has failed to distinguish the decent and indecent in expectoration is, indeed, a blot on the escutcheon of modern civilization and education. The failure lies in the absence of provision for accomplishing a function and a general apathy to consider sputum excrement. People do not care. Everybody spits. Why should one step aside?

Anti-spitting signs are now posted in most communities in this country. There is a great difference in the types of signs used. The most common wording is the forbidding sign, often with an announcement of the law and a statement as to the possible fine that may be imposed. There is generally an absence of information that is to be a help to the public. This point has been generally overlooked. In all sanitary improvements we can best accomplish success by securing intelligent assistance from the public itself. We cannot have a boy with a sprinkling-can run after people and disinfect sputum or gather it up as we do for horse manure. We must use every means to get people in a way to help themselves.

The control of the expectoration nuisance can be undertaken along several lines of activity in the work of a health department:

1. Education.
2. Compulsory activity, arrests, etc.

*Read at the sixty-fourth annual meeting of the Illinois State Medical Society, Section on Sanitation, Decatur, May, 1914.

3. By offering convenience to care for the function.

4. By persuasive means, as the anti-spitting crusade.

5. By keeping public places in such good order that cleanliness will be the determining factor.

6. The influence of popular habits, as gum chewing, or like practice.

Education.—The educational campaign against expectoration must be with the children. It is useless with adults. Dr. Knopf, in the International prize essay, has recommended a leaflet called the alphabet, in which each letter represents some fact in the anti-tuberculosis campaign, and covers care of mouth and nose mucus. The end of the use of slates, sponges and drinking-cups, and the general instruction that objects must not be put in the mouth, go a long way towards gaining an attitude of mind to develop decency in regard to spitting. Where the authority is sufficiently respected, the spitting nuisance can be stopped at once. This was done at the slaughter houses in the Chicago Stock Yards after the "Muck Rake" investigation in 1906. It was there made a rule not to spit except into cuspidors, and the rule was enforced. We all know that medical colleges especially were in an awful condition because of the bad practice of students. In the College of Medicine of the University of Illinois the usual conditions as to smoking and spitting pertained until President James issued an order forbidding the same, and at once the condition changed, because the students recognized the authority of the regulation. Such rules can be made effective in schools, shops or business places where we are dealing with the same groups of people, but the general public is hard to handle, and cannot be regulated in so easy a manner.

Compulsion.—Generally, compulsion by arrest, fines and threats under ordinance regulations has been a failure. The difficulty is that in the first place people pay little attention to such laws; secondly, it is very difficult to secure evidence, and then only the worst offenders are captured; thirdly, it is difficult to prove in court that an injury has been done; fourthly, it is an expen-

sive and annoying method to accomplish the purpose.

Conveniences.—If sanitation purposes to offer protection against sputum as a factor in the spread of disease, it must plan out some method of disposal. The ultimate aim of sanitation should be to prevent untreated sputum from getting away. It should go with sewage. We should try to get it deposited in drains, and here its disposal is as a part of other excrement disposition. The ordinary cuspidor is at the present time an apparent necessary nuisance. The time will come when it will be abolished. This is necessary because of its free exposure and the dangers that accompany cleaning. Places to spit: The gutter outdoors is an almost universal cuspidor, while, indoors, stationary flushing cuspidors are to be recommended, and, if movable, they should be provided with lids. All toilets are cuspidors, a fact little thought of by people in general. The cuspidor that is often placed in a toilet is in itself a menace by attracting flies and often making the place unbearable.

Persuasion.—"Join the Anti-Spitting Crusade." Many people have good intentions, but they do not follow the principle when alone and free. It takes a special mental attitude to follow a precept through a day's activity and live up to what we may know to be right. The Anti-Spitting Crusade is a good, popular way of stating the subject, and in time will have many adherents. However, it only reaches a small class of wide-awake people and is passed unnoticed by the masses. Such a crusade is also spasmodic and exerts a good influence only over short periods. As in all crusades, it is the novelty of the situation and idea that makes it go. If a crusade is undertaken it should be on a wide scale, so as to reach all classes and places in the community. It is almost impossible to find the last place where an improvement cannot be introduced for sputum disposal. It is not always easy to spit straight, even with good intention. All the different restrictive and preventive measures, as care of the fingers, mouth and nose, proper use of handkerchiefs, when and where to spit, and the danger of disease dissemination may be fully covered to advantage in such a campaign.

Cleanliness.—A man does not like to spit on a clean floor. If it is dirty, he will spit at once. If it is clean, he usually goes over and spits on the wall. No better example of a changed condition can be found than the difference between the old Northwestern Railway Station in Chicago and the new station. The old station was probably the dirtiest in the country, while the new one is so clean that one hates to make it dirty, and it remains clean.

Habits.—The reduction of the extent to which chewing tobacco is used is having an influence on expectoration. There is a widespread substitution of chewing gum for tobacco. To chew something is a general characteristic of mankind. In every country or clime, some form of chewing is practiced. In some, nuts or berries are chewed and the hulls or seeds spit about. The use of gum is in many ways a sanitary improvement. It is cleanly and there is less tendency to spit while chewing gum.

As more infections begin by an invasion through the mucous membrane of the mouth and nose than by any other atrium, the public should be instructed as to the dangers from sputum, and the means of disposing of it. Our publicity campaign cannot go too far, because spitting is so frequent and promiscuous that attention must almost be continuously directed against it. Facilities should be provided and the people should be instructed to use them. The wording of signs ranges from a simple command not to spit to elaborate instructions and extracts from the laws and ordinances, and sometimes the amount of the fines that may be imposed. Generally, these signs can be greatly improved by making them instructive rather than forbidding signs. Usually the public is looking for help. We should consider them a menagerie by providing conveniences and helping to have them used. The display of signs is to be carefully studied, and this will make a great difference in the effect that they will have. It is suggested that a printed card be handed to offenders. People generally take offense when asked not to spit, and even purposely break the rules from a general feeling that it is an interference with personal liberty. Again, others are too lazy to exert themselves in making proper disposal. The bad habit of spitting into a corner is even the result of signs, because some

people like to hide their misdemeanor. Generally a sign makes an impression, whether it is obeyed or not. The display of signs can go as far as is done in Milwaukee, where every telephone pole has a sign forbidding spitting on the sidewalks. The signs there are of metal, like advertising signs. The signs displayed in cars, railway coaches and buses do very little good, because the passengers are often obliged to keep their seats, and, therefore, spit in the corner, because they cannot get out. It is well-nigh impossible to prevent this. To achieve perfect sputum disposal a sentiment must be developed, means for proper spitting provided, and some of our apparently fixed customs altered.—*Department of Hygiene, College of Medicine, University of Illinois.*

METASTATIC INFECTIONS.*

J. A. COLTEAUX, M. D.

ROBERTS, ILL.

These infections are very common and many times overlooked, or are confused with the term rheumatism.

They usually begin as a tonsillitis, pharyngitis, laryngitis or any respiratory infection with the following bacteria or cocci, such as staphylococci, streptococci, pneumococci, diphtheria, etc.

They are ushered in with a chill, fever, headache, general malaise, followed in from 5 to 10 days with a metastatic infection in some other part of the body, such as joints, kidney, gall bladder, liver, spleen, urinary bladder, prostate, or any of the sinuses.

At the beginning of this metastatic infection you usually get increased temperature and exaggeration of the previous infection, higher temperature, distinct chill, etc. Taking for instance a joint, we will say the knee, which is usually one of the most often involved, patient complains of pain while walking or standing. Later on contraction of the muscles takes place, which is nature's way of immobilizing the joint. Later on he is unable to move the joint without excruciating pain. In the joint we have local signs of inflammation such as redness, heat, swelling

*Read at annual meeting of the Iroquois-Ford Medical Society, Dec. 1, 1914.

and pains, and at times an effusion into the joint. If this condition is let run we have an involvement of the ends of the bones with a plastic exudate which later on develops into a complete ankylosis. Going back to the primary infections we have one which is very common, the gonococcus. About the 18th day after the primary infection is the time that metastasis takes place. Usually the knee, hip or ankles are involved. With this you also get the usual signs of infection as stated before.

Time prevents me from going further into the infectious nature of each group of bacteria, their favorite places of infections, and also the pathology. I will now take up the treatment of the joints especially, as they are the most neglected or overlooked parts of the anatomy. Usually they are called a rheumatic joint in which large doses of salicylates are given and continued until after the joint tissues are destroyed and an ankylosis is unavoidable.

After you get an involvement of a joint, we will say the knee, put the patient to bed immediately, keep up elimination, use vaccines if necessary; but the most important part is the treatment of the joint itself. After patient is in bed, put on a Buck's extension of about 20 or 30 pounds in weight (the weight depends on the musculature of the patient. If there is effusion in the joint causing much tension, you must relieve the tension at once, first by applying Buck's extension, which separates the joint surfaces. If this does not give you the required relief, aspirate the joint and inject from 10 to 20 CC. of a 2 per cent. formalin in glycerin, which should be at least 24 hours old. This cofferdams the lymph spaces, and makes the joint as near aseptic as possible. If the effusion returns, aspirate in 48 hours and re-inject. Do not inject over three times. Let two days elapse between the second and third injection. Immobilization, aspiration and injection are absolutely useless, unless Buck's extension is applied to separate the joint surfaces. After acute inflammatory condition of joint has passed over, put on a splint or cast and keep immobilized for 2 or 3 weeks longer, not allowing patient to use limb.

A RESUME OF LITERATURE SHOWING INFECTION AS THE CAUSE OF RHEUMATISM, ENDOCARDITIS, ARTHRITIS DEFORMANS ULCER OF STOMACH, AND CHOLECYSTITIS.*

S. S. FULLER, M. D.

PAXTON, ILL.

I beg to make an apology for presenting a paper upon this subject. For several years I have been especially interested in watching the experimental work of E. C. Rosenow, of the Memorial Institute for Infectious Diseases, Chicago, from the time he began his work upon the pneumococcus. When I was asked to write a paper, this subject presented itself and that you might have first hand and authoritative information upon this probably the most important discovery of modern medicine, I asked Dr. Rosenow to present a paper. For pressure of time, he declined, so in my feeble way I will try to bring to your especial attention some of his work.

The clinical evidence of the infectious character of acute rheumatic fever is quite convincing. The nature of the more chronic forms of the disease, however, and of the allied conditions, such as chorea, rheumatic iritis, erythema nodosum, and erythema multifome, is not so clear.

A large variety of organisms have been isolated from the lesions in rheumatic fever. Achalmé and others isolated from cases after death a large gram staining bacillus. Tribloulet and Coyon cultivated a diplococcus in five cases, pure cultures of which caused arthritis and endocarditis in rabbits. It is now generally held that the bacillus of Achalmé is identical with the bacillus Welchii (*B. acrogenes capsulatus*). Meyer was the first to demonstrate that the streptococci associated with the relatively mild tonsillitis in rheumatism commonly produce arthritis, endocarditis and pericarditis of the rheumatic type in rabbits. Others have isolated streptococci or diplococci quite uniformly from lesions in rheumatism after death, but only in a limited number of cases during life. These organisms closely resemble other streptococci morphologically and culturally, but when injected into animals, produce effects quite different from those obtained by the injection of

*Read at the annual meeting of Iroquois-Ford Medical Society, Dec. 1, 1914.

organisms coming from other sources than rheumatism. The experimental disease resembles very closely the disease in man. That rheumatism is a streptococcus disease, is further indicated by the work of Tunnicliff on the opsonic index; by the fact that the myocardial lesions produced experimentally by Coombs and others with the streptococci from rheumatism, are identical with those described by Aschoff and Tawara as characteristic of rheumatism in man; and by the fact that hemolytic streptococci, as shown by Jackson, and streptococcus viridans, as shown by Rosenow and Coombs, produce similar, although in the case of streptococcus viridans very much smaller lesions in the myocardium of rabbits, following intravenous injections of the respective strains.

The affinity for joints of streptococci from other sources than rheumatism has been emphasized by several. The arthritis following injections of these streptococci is often monarticular; the exudate contains many cocci; suppuration and deformity occur; endocarditis and pericarditis develop only occasionally, while a grossly visible myocarditis has not been described.

By injecting mixtures of hemolytic streptococci and streptococcus viridans, Rosenow has repeatedly produced arthritis and endocarditis in the same animal. The arthritis was proved to be due to hemolytic streptococci, and the endocarditis to streptococcus viridans. But even here a gross pericarditis and myocarditis have not been observed.

A careful study of the protocols of the animal experiments performed by the investigators in these respective fields shows clearly that the results following injections of streptococci from rheumatism and streptococci from other sources, respectively, correspond quite closely to the differences observed clinically in articular rheumatism, on the one hand, and streptococcal arthritis on the other. In spite of these facts, however, the view that rheumatism is due to a specific streptococcus has not been generally accepted because so many investigators have failed entirely or only rarely obtained the organism. And, finally, no one until recently has isolated the organism in a considerable number of consecutive uncomplicated cases of rheumatism during life.

As further evidence that streptococci are com-

monly associated with rheumatism, it should be stated that Rosenow has recently been able to isolate streptococci from the slightly enlarged but hyperemic extirpated lymph glands, draining the joints. In the glands, the streptococci have been found during convalescence long after they have disappeared from the joint exudate. It should be pointed out that although the strains isolated tended to fall in three distinct groups, all behaved differently in one respect or another from the usual streptococcus viridans and hemolytic streptococcus. By inoculating rabbits and dogs as soon as an abundant growth could be obtained, the chief point of difference from streptococci isolated from the usual sources was shown, not only by their simultaneous affinity for the endocardium, pericardium, myocardium, and joints, but by their localization in the animals in sites corresponding roughly to those in the case from which they were isolated. Thus the strains isolated from cases without muscle involvement never produced muscle lesions, but endocarditis and arthritis, and sometimes pericarditis, while those strains isolated from the lesions in the muscles in man as well as those isolated from the joints in cases showing definite muscle involvement, produced in addition to endocarditis and arthritis, a non-suppurative myositis and a pronounced myocarditis.

The close relation which exists between rheumatism and chorea in man is paralleled to a degree by the animal experimentation. That chorea is due to a streptococcus, having peculiar properties, has recently been quite conclusively shown by Dick and Ruthstein.

Experimental evidence has been produced which goes to show that probably lodgement in the fine capillaries of the iris occurs in rheumatic iritis, and that muscular rheumatism, or rheumatic myositis, is commonly due to streptococci closely related to those found in articular rheumatism.

It must not be supposed that the streptococci associated with rheumatism are a group of organisms far removed from other streptococci, or that they are necessarily specific for rheumatism. The fact that certain strains of streptococci change more or less in their cultural and other properties under various conditions, is quite well known and Rosenow has shown that the organism from

chronic septic endocarditis, streptococcus viridans, can by animal passage be converted into the pneumococcus. It is generally understood that the streptococcus viridans is an intermediate organism between pneumococcus and streptococcus hemolyticus, and by appropriate means he has now transformed one into the other and vice versa with intermediate forms of which the streptococcus viridans is the most typical.

Owing largely to the work of Davis and Billings and others, it has been shown that the hemolytic streptococci have a marked affinity for the joints of animals and man. The transformed streptococcus viridans loses its affinity for the joints and acquires a marked affinity for the heart valves, while the same organism becoming transformed into a typical, lanceolate, encapsulated, highly virulent pneumococcus, produces now, neither endocarditis nor arthritis, but a rapidly fatal pneumococcemia instead. After transforming hemolytic streptococci, streptococcus viridans, and pneumococcus one into the other, Rosenow felt that if there is such a thing as a "streptococcus rheumaticus," he must find it if possible and determine its relation to the other members of the streptococcus group. By appropriate means he has been able to do this.

There is an affinity of streptococci for the mucous membrane of the stomach and duodenum in rabbits, dogs and monkeys, which, while not so striking as that for the muscles, is nevertheless definite and is shown usually at a grade of virulence a little higher than when the affinity for the muscles is greatest. The fact that the grade of virulence is such as not to give a picture of a generalized infection, that the type and localization of the ulcer is strikingly like the ulcer of the stomach in man, together with clinical observations, suggest strongly that this may be the cause of ulcer in man. The results are such that the ulcers are not to be considered accidental, because they occur commonly, only when the streptococci of a certain grade of virulence are injected. This is a very important finding and changes our entire conception of the etiology of ulcer of the stomach.

At about the grade of virulence when streptococci show the affinity for muscles and stomach mucous membrane, they show an affinity for the gall bladder. Rosenow has now isolated the spe-

cific streptococci from the wall of an infected gall bladder and invariably produced cholecystitis in lower animals as he has personally shown me. This opens up the etiology of another disease heretofore little understood.

The fact that one form of streptococcus may be changed into another with entirely different properties is good evidence against the view held by some that the streptococci found in the joints in rheumatism are merely secondary invaders, and that the real cause is still unknown. The experiments show further that when these and other streptococci are grown in symbiosis with other bacteria and under a varying degree of oxygen pressure, they may acquire new features. The place in the human body where such conditions prevail, and where special features are likely to be acquired, are foci of infection such as occur in the tonsils, various sinuses, the appendix and infections about the teeth and gums. That changes in the character of the bacteria actually occur in the tonsils in rheumatism seems quite clear; the mild character of the tonsillitis at the time of the attack, and the late appearance of rheumatism in some cases of acute follicular tonsillitis (streptococcal) support this idea. The focus may be unusual, such as an injured thumb or an ingrown toe nail.

While it is true that acute rheumatic fever has a distinct clinical picture, it is equally true that certain cases, especially the more chronic form of the disease, can not be differentiated from the early stages of some cases of arthritis deformans. Again, certain cases of chronic infections endocarditis follow in the wake of acute rheumatism.

Recently Rosenow has had opportunity to study the streptococci isolated from the glands draining the involved joints in arthritis deformans, and finds that these organisms have distinctive cultural and pathogenic features which are in keeping with the type of disease produced in man. From these facts it is clear that the character of the disease produced, and the location of the lesion, depend to a very large degree upon the character of the infecting streptococcus. There is, on the other hand, good evidence that peculiarities of the infected individuals, especially those liable to repeated attacks of rheumatism, play a role. For some reason these in-

dividuals seem to be susceptible or react peculiarly toward this group of streptococci or otherwise furnish conditions such as foci of infection which favor the entrance into the body and acquirement of the special features by these organisms.

CONCLUSIONS.

1. There is a wide range of organisms of the streptococcus family that may be derived from the pneumococcus and transformed from one into another.

2. The different strains of the organism have different virulence and different affinity for the various parts or organs of the body, each strain having a specific action producing a specific disease. These diseases are often associated.

3. There is some point of infection in the body, such as the tonsils, gums, teeth, sinuses, etc., where these changes in the organism take place, acting as feeders to the system producing the different pathological conditions.

4. The different diseases coming under this group are: rheumatism (muscular and articular) and associated diseases such as chorea, rheumatic iritis, erythema nodosum, and erythema multiforma, arthritis deformans, endocarditis, ulcer of the stomach, cholecystitis and possibly ascending pyelonephrosis not heretofore mentioned.

5. A great many diseases and their complications are to be avoided by attending to the focus of infection. This means that particular attention is to be given to the upper respiratory tract in keeping it in a healthy condition. If carcinoma of the stomach has its beginning in a chronic ulcer of the stomach, as is now firmly believed, this will have a far reaching effect in cutting down the large number of these cases.

ACUTE INFANTILE OTITIS.

E. E. WOODSIDE, M. D.,

MARION, ILL.

In order to prevent this paper from reaching an unbearable length, it has seemed wise to limit its scope to the consideration of acute otitis occurring in infancy and childhood. No attempt will be made to differentiate between the catarrhal and suppurative forms, or to discuss the more minute phases of etiology and pathology, which have an interest only for the spe-

cialist. I have in mind only to present a short and if possible, a practical paper, that will help you as busy, practicing physicians in these, many times troublesome cases.

I think we can hardly overestimate the value of a correct diagnosis and early treatment in these cases, if we consider that improperly treated cases many times go on to mastoid involvement, meningeal involvement, internal ear involvement, and brain abscess, as well as oftentimes passing into the chronic discharging ear with its troublesome features. These sequelae can largely be prevented by early and appropriate treatment. The responsibility rests mainly on the family doctor, as it is to him the parent usually applies first for relief.

The occurrence of otitis media in infancy is principally favored by the anatomical conditions of the auditory duct and by the greater prevalence of adenoid tissue around the mouth of the duct. The Eustachian tube of the infant is a short, wide and relatively horizontal canal, the pharyngeal orifice of which lies a little behind the choanae and on a level slightly below that of the hard palate. Its physical characteristics seem, therefore, as compared with the adult tube, particularly favorable to the entrance of germs from the nasal secretion draining posteriorly into the pharynx and to the development of vascular changes as a result of any pathological condition within the nose or nasopharynx.

Named in order of their importance the exciting causes of acute otitis are: 1 Nasopharyngitis—the common “Cold in the head.” More cases are secondary to this affection than probably any other. 2. The acute exanthemata; scarlet fever, diphtheria and measles cause acute tympanic disease with even greater frequency than we sometimes believe. Scarlet fever causes more cases than the other two and more of its cases go on to mastoid involvement. Acute influenza gives rise quite frequently to middle ear disease of a severe type. 3. Hereditary constitutional affections such as tuberculosis, syphilis, rachitis and alcoholic heredity. 4. Traumatic injury of the middle ear before and during birth. 5. Coughing, sneezing and vomiting, forcing foreign substances through the tube into the tympanum.

A long list of micro-organisms have been found in the secretions in otitis. Named in

order of frequency are streptococcus, pneumococcus and streptococcus musosis, staphylococcus, albus and aureus, bacillus proteus and pyocyaneus, etc.

As regards virulence, there is no room for doubt that the strepto and pneumococcus give rise to a middle ear involvement which leads more frequently to intracranial complications than any of the others. It has been held that the staphylococci do not cause intracranial complications, which is an extreme view but is certainly rare compared with those due to strepto and pneumococcus infections.

Before discussing clinical symptoms I should like to mention certain anatomical points that bear on the symptoms and course of the disease. The cavity of the atrium is lined by an exceedingly thin membrane adhering closely to its bony walls. Externally the atrium is closed by the tense, inelastic portion of the drum membrane. Superiorly the atrium is more or less completely separated from the tympanic vault by the structures massed in this situation, viz.: ossicles and their ligaments with the mucous membrane which envelops them. From the anterior walls of the atrium the Eustachian canal leads forward, inward and downward into the nasopharynx.

An inflammatory process originating in and confined to the atrium represents changes taking place in the following manner: 1. Marked dilatation and engorgement of the vessels in the lining membrane. 2. Transudation of serum and migration of leukocytes from the veins into the mucoperiosteal lining. The consequent inflammatory thickening of the lining membrane has the important mechanical effect of rendering the separation of the atrium from the vault more complete. The Eustachian tube is also more or less completely closed by the inflammatory swelling in the region of the tympanic orifice. With the formation of pus or effusion of serum into the atrium, the walls of that cavity are subjected to pressure. The outer wall or membrana tensa offering less resistance soon bulges. Hence, the sometimes early rupture of the drum membrane.

When acute otitis occurs as a complication of one of the acute infectious diseases, the otitic symptoms may be masked by the general disease. When on the other hand the otitis is not

secondary to systemic infection, the onset is usually sudden and clearly defined. As a prodromal symptom, which may be noted by older children, a sense of fullness may occur. Usually, however, the symptom first noted is that of pain. The earache is usually sudden in its development. Following a few premonitory twinges, it soon assumes a character of constant pain which rapidly reaches an unbearable degree of severity. Not infrequently the patient retires at night with no noticeable discomfort, to be awakened during the night or towards morning by the severity of the ear pain. Once established the pain is usually constant but is subject to exacerbations of intensity. With the beginning of pus formation the pain becomes "throbbing" or "drawing" in character. The severity of the pain often distracts the patient's attention from the minor symptoms. If questioned, however, he usually becomes conscious of subjective sounds; tinnitus aurium. The hearing is impaired.

With infants and young children even the mildest type of middle ear infection is usually announced by rather high fever, varying from 102 to 105. Digestive disturbances are common during the early stages of an acute otitis.

The possibility of overlooking an inflammation of the middle ear is increased by the helplessness of the infant. It is not before the fourth month that the infant directs attention to the possibility of an auricular infection by rubbing its ear, putting the hand to the head, crying when the ear or its vicinity is touched or even avoiding lying down on the affected side. Exacerbation of pain when sucking often interrupts the feeding, the patient giving vent by crying. Up to that age, however, all motor reaction may be absent and the diagnosis only cleared up when a discharge of pus is found in the external canal. Sometimes it takes as long as 10 days or two weeks for the tough membrane to become ulcerated and to rupture.

It is important that a careful otoscopic examination be made in every unexplained febrile affection of childhood. This requires proper care, patience and suitable light and instruments. The external canal should be syringed free of all accumulations of cerumen and epithelial debris, until a clear view may be had of the drum head. A good light is essential. The child's head should be rigidly held. The specu-

lum should be small enough to fit well into the canal.

The otoscopic picture varies with the stage of the disease at the time of the examination. If seen early enough the first injection occurs in the vessels along the handle of the hammer and the circumference of the membrane. Very shortly afterward the entire drum will appear red, very red, the deeper injection in the upper part. A few hours later the whole drum is not only distinctly red but bulges toward the external canal. A small central depression may be noted in the region of the umbo. The remaining landmarks are usually entirely obliterated at this stage. The examination still further delayed we usually find the canal filled with pus, which indicates that our drum membrane has been perforated.

With painstaking observation of the patient and careful otoscopic examination, there can be no difficulty in the diagnosis of infantile otitis provided the physician considers the possibility of otitis media in infants and young children at a sufficiently early stage.

The prognosis is favorable in otherwise robust, well nourished children both for the simple and suppurative otitis media. With proper care in the great majority of cases, the organ will be completely restored without any impairment of hearing.

In debilitated, under nourished, rachitic infants, there is some danger of the acute developing into the chronic form with permanent changes even after later healing. This is true in cases seen late, or neglected. When the suppuration becomes chronic it often leads to moist eczema, and constriction of the auditory duct, with consequent retention of pus in the middle ear, ulcerous processes of the mucosa, formation of granulation and polypi, carious changes of the auricular vessels and osseous walls of the middle ear, with all their sequelae.

The treatment of infantile otitis hardly differs from that of adults. Early paracentesis is important, as its omission may be responsible for mastoid and intracranial involvement.

The paracentesis should be more than a simple stab of a needle. It should be a full free incision beginning well up to the posterior fold and extending downward through the inferior margin

of the membrane and into the skin and periotum of the floor of the external canal. No known drug will render the inflamed drum anesthetic sufficient for a thorough and painless paracentesis when applied locally. A general anesthetic, preferably with nitrous oxid gas is essential to good results.

After paracentesis it is essential to keep the canal free of pus by syringing frequently with warm sterile solutions of normal salt and by traction by sterile gauze wicks carried down to the opening in the drum.

Non-operative treatment is indicated in a very small percentage of the cases and in the very earliest stages of others. The so-called abortive treatment may be tried when the case is seen very early before there is any bulging of the membrane. This treatment is to put the child to bed, induce free catharsis and strictly liquid diet. Syringe the external canal free with hot normal saline. Fill the cavity half full of hot 5 per cent. phenol in glycerine. The usual ear drops of sweet oil and laudanum and all other oily preparations should religiously be kept out of the ear. Heat is very grateful to the patient when applied to the ear in any form. A good prescription to take home with you is chloroform and olive oil equal parts. About a teaspoonful poured on a large piece of cotton and held over the external canal will many times work wonders in relieving the pain.

When pain is not relieved within a reasonable length of time or when the drum membrane is seen to bulge into the canal from pressure of serum or pus behind it, abortive measures should be abandoned and speedy and permanent relief secured by the surgical measure already outlined.

After the acute process has subsided you can most generally save the patient from future attacks and thus earn his or his parents' lasting gratitude by advising that his adenoids be removed. You can be sure they are present in fully 90 per cent. of the cases of acute otitis.

CONCLUSIONS.

1. Acute otitis media in children is a common disease. It is sometimes primary but most often secondary to a general affection or to an acute process in the nasopharynx.

2. If the physician keeps in mind its possibility in unexplained febrile affections of childhood and uses sufficient care and patience in the

otoscopic examination the diagnosis is easily made.

3. The treatment is simple and easily applied and if begun early enough and properly used the usual result is excellent.

4. Cases seen late that have been neglected or improperly treated, the result may be a mastoid infection, a meningitis, a brain abscess, a chronic discharging ear or permanent impairment of hearing.

THE CONSERVATION OF HEARING.*

EDWARD E. EDMONDSON, A. B., M. D., C. M.,
MT. VERNON, ILL.

The importance of the function of hearing is so great and its loss is so nearly irremediable that it becomes the first duty of the aurist to acquaint himself with all the elements which enter into the anatomy and physiology of the auditory apparatus and to familiarize himself with the intrinsic and extrinsic enemies of sound conduction and sound perception, to the end that he may preserve the fullest power possible in this field and to be able to use the best means of relieving any disturbance that may arise in this organ at the earliest moment.

There is no more important function in the commercial value of any individual unless it be the eye. When this function is lost in early infancy the result is an added mutism, the little ones not having formed the faculty of speech are unable to acquire it in later life. This fact is forcibly commented on by Gruenwald, who states that in a census in the Kingdom of Prussia taken ten years ago there were 38,000 deaf mutes of which 95 per cent were suffering from preventable deafness, and it is perhaps well within the limits of conservatism to suggest that this same cause is responsible for as great percentage of deafness found in all lands, for we are apparently just entering into the era of conservation of the special senses, and that this study is stimulated to some extent by the commercial necessities of the modern business world.

The acute infections are responsible for the greatest number of cases of deafness, perhaps greater than all other causes combined. Measles, mumps, whooping cough, scarlet fever, diph-

theria and influenza seem to be the exciting cause in the vast majority of cases that have come to the notice of statisticians.

To these should be added that large army of persons who are defective in hearing because of causes which result in gradual loss of hearing, and for which the profession has been so long in discovering the etiology.

The elements of audition should be divided into those of the conduction apparatus and the perception apparatus.

The most common causes arise in the conduction apparatus which depends upon the integrity of the ossicles, tympanum and Eustachian tubes; the ossicles for mobility, the tympanum for a normal mucous membrane, and the Eustachian tubes for patency.

Any form of ankylosis of the ossicles creates some loss in the acuity of hearing, the presence of exudates, transudates or infection in the tympanum, or edema in contiguous tissue, or new growths in or adjacent to the tympanum will impair the function, while the patency of the tubes is necessary for the proper aeration of the middle ear as well as affording the proper drainage of the same.

Trauma to the inner ear will produce loss of the function as will infections reaching the perception apparatus through the blood and lymph streams. But for every case of disease of the perception apparatus the aurist meets he will see possibly 100 cases of deafness due to disturbance in the conduction apparatus, and it is to this phase of the etiology that I wish to call your attention in this paper.

To mention the least frequent causes first I should name furunculosis and cerumen in the external auditory canal. I hold in my hand the cerumen and epithelial casts removed from a patient's outer ear which had caused defective hearing for more than 20 years. These were quite easily removed by means of this constant flow pressure syringe, and he became conscious of ordinary sounds instantly.

Of the causes arising in the middle ear the most frequent is a suppurative otitis media, and the next is a so-called catarrhal otitis media.

In all these cases a careful examination will reveal a closure of the Eustachian tube on the affected side. This closure has a cause that should be removed if the aurist would give the

*Read before the Southern Illinois Medical Association, Nov. 6, 1914.

patient permanent relief from impairment of hearing.

The histology of the tube shows that its cartilaginous part is lined on one side with lymphatic glands which are a continuation of the lymphatic or tonsillar ring of the throat, and as such must suffer the same degree of swelling and edema that is seen in infections of the ring in the throat.

Tonsillitis, phlegmon of the pharynx, inflammation of the adenoid tissue all lead to extension of the congestion and edema upward into the fossae of Rosenmueller and from there it is but a step to a serious involvement of the glands of the tube, resulting in its closure with the consequent retention of the products of middle ear metabolism, which in turn form a culture medium for bacterial activity. In mild cases this leads to catarrhal otitis media, which in more virulent infection leads to involvement of the middle ear in an inflammatory process.

In some cases this is of short duration and the throat infection being controlled the ear shares the good fortune of the same and no permanent impairment remains, while in others the ear infection endures long enough to cause thickening of the mucosa and the retention of serofibrinous exudates which clear up slowly or not at all, thus leaving the patient with some permanent impairment of hearing.

This process is repeated with the next infection of the tonsils or pharynx no matter what the character of infection, with still greater loss of hearing and with a more or less chronic catarrh of the tube, leading to defective aeration of the tympanum, and the case becomes one of the partially deaf who are annoyed with missing a word now and then and later with a ringing in the ears that is a still greater impediment to happiness.

In more violent inflammations of the lymphatic tissue of the throat and tube the ear suffers a suppurative process which ruptures the membrane and drains through the external ear or the pus burrows through the aditus ad antrum and a mastoiditis results. Even the perforations may heal and the patient enjoy a certain degree of freedom in hearing, but this should not be expected for it is not the rule. The usual result is a discharging ear that has suffered an impairment of hearing that is not wholly remediable.

This infection of the lymphatic tissues in the throat and tubes follows from the acute infectious diseases and so often we hear the statement that the ears began to run when the patient had the measles or the scarlet fever, or possibly a sore throat.

How then should we endeavor to conserve the function of hearing through the period of childhood when the acute infections are so prevalent?

We are of the opinion that the tonsils serve a purpose in early infancy and that after the age of three years they become functionless and as such are analogous to the thymus gland and should atrophy, but owing to infections gotten from the manner in which civilized nations live the tonsils become infected and the infections remain in the crypts and cause a chronic inflammation of the throat which keeps the tubes in a state of closure.

In infancy the adenoid tissue should be removed if present or if any disturbance with the ears is discoverable.

If the tonsils show hypertrophy or the pillars of the tonsils are red or a pharyngitis is present the tonsils should be enucleated, care being taken that the superior pole is not left after operation. This insures that the most common atrium is removed and there is not so much likelihood of ear infection, and the freedom of the tubes from closure is more probable.

The naso-pharynx should be treated with some reliable antiseptic as iodine-phenol-glycerine on an applicator to remove all bacteria from the entrance to the tubes and then they should be inflated and if there be any further evidence of middle ear involvement, the appropriate vaccine should be used.

In a study of the bacteriology of all the tonsils removed in St. Luke's Hospital, Chicago, it was my observation that all of them were infected with pyogenic organisms, and of this about 2 per cent were tuberculous. A study of the bacteriology of the cases of suppurative otitis media in the same hospital showed the same organisms, and it seems rational to presume that the infection of the oro-pharynx led to an invasion of the tubes and from them to the tympanum and its consequent inflammation.

A clinical study of the gradual loss of hearing in later life shows also a closure of the tubes and retraction of the drum membrane which results

in some degree of ankylosis of the ossicles and a rarification of the air in the tympanum which in itself is an impediment to accurate hearing, for a vacuum is almost a perfect non-conductor of sound waves.

The rationale of treatment in these cases is the same as in the more acute cases, that is to say, removal of the entire tonsil and antiseptic treatment of the naso-pharynx and inflation of the tube.

My best results have been obtained by the following routine: Enucleation of the diseased tonsils, the exhibition of alteratives and a weekly treatment consisting of antiseptic swabbing of the naso-pharynx, inflation of the tubes at the same time using the high-frequency current and vibratory massage to the temporal bone and pneumo-massage directly in the external auditory meatus, and where there remains a discharge from the ear or a posterior pharyngitis the use of graduated doses of autogenous or stock vaccines which clears the ear in from two to eight weeks. The mechanical treatment should be continued till all discomfort is relieved and the tubes stand open without effort.

Where the Gellé test is positive the results may not be so favorable as to the hearing, but the routine treatment gives this class of patients some measure of relief and should be regularly given with this end in view.

The same relief has not obtained in cases where enucleation and vaccines were not used, although there is a marked temporary benefit derived by the rest of the routine treatment.

So far as has come to my knowledge, Dench is the first writer in this country to call attention to the damage done to the function of hearing by presence of chronically enlarged tonsils. He shows very clearly that the enlargement causes a mechanical closure of the tubes.

This results in the gradual deafness of later life many years subsequent to the cessation of acute ear troubles and acute inflammations of the throat and pharynx.

I feel that some emphasis should be placed on the use of the high frequency current and the vibratory and pneumo-massage in these cases, this routine treatment has the effect of stimulating an increase of circulation through the entire auditory apparatus and causes an absorption of the old products of inflammation in the

middle ear and gives the ossicles a physiologic action which increases their function and in the structures of the inner ear gives a greater activity to anabolism by which the entire ear is improved and the happiness of the patient greatly enhanced. The operation for removal of the tonsils is of some interest in the conservation of hearing. Any operation which leaves a portion of the tonsil is valueless as an aid to hearing, while any trauma to the pillars as so frequently obtains from the zealous use of the guillotine without first careful dissection of the pillars will lead to a partial removal of the plica and muscle tissue, resulting in scar tissue and contraction which later closes the tubes, thus rendering the operation unsuccessful.

The following cases illustrate the results to be expected in cases of this character:

Case 1. Deaf mute, aged 21 years; suppurative otitis media before the power of speech was formed; otoscopic picture that of completely destroyed conduction apparatus of both ears; repeated attacks of tonsillitis; operated on April 18, 1914, with complete relief of the throat symptoms.

Case 2. Mrs. J. E. R., aged 32 years; gradual loss of hearing dating back 7 years; tonsils enlarged, pillars red, drum membranes retracted; normal conversation negative, as were also the whistles of trains and factories, etc.; tonsils enucleated May 2, 1914, with routine treatment for four weeks, when she passed out of my hands, but at that time could hear the train and factory whistles and the sound of moving trains and loud conversation.

Case 3. W. B., aged 16 years; had suppurative otitis media since two years of age; normal conversation negative; talked in a monotone; tonsils enlarged, pillars red, throat filled with mucus; tonsils removed April 22, 1914, and routine treatment continued for 8 weeks with restoration of power to hear normal conversation and complete relief of the throat symptoms and cessation of the aural discharge.

Case 4. T. A. C., aged 36 years; right ear began running in early boyhood, left ear began to discharge 2½ years ago; normal conversation almost negative; routine treatment relieved temporarily but relapses frequent; removed tonsils June 13, 1914, followed by routine treatments twice a week for 4 weeks with restoration of ability to hear normal conversation and cessation of the discharge.

Case 5. B. W., aged 17 years; complaining of deafness in both ears; normal conversation misunderstood; acute catarrhal otitis media; drum membranes red and bulging; tonsils, pillars and pharynx very red. After controlling the acute inflammation the tonsils were removed June 16, 1914, and followed by routine treatment irregularly for 9 weeks with complete restoration of the function of hearing and cessation of all throat symptoms. It should be mentioned

here that a blood analysis by Dr. W. H. Gilmore showed a hemoglobin percentage of about 70 and with proper treatment at his hands she has improved quite rapidly.

Case 6. J. P., aged 18 years; pain in right ear with loss of hearing following mumps nearly 2 years ago; watch tick negative at one inch; ear drum retracted and malleus foreshortened; tonsils submerged and throat red with some coughing and clearing of the throat; lateral pharyngitis extreme; removed tonsils August 18, 1914, and followed with routine treatment for four weeks with restoration of watch tick at 15 inches and much improvement in hearing and cessation of the pain in the right ear.

Case 7. C. C., aged 17 years; complains of inability to hear normal conversation and of obstruction to nasal respiration; drum membranes retracted and tonsils submerged with red pillars; removed tonsils September 9, 1914, followed with 5 weekly treatments resulting in complete restoration of the power of hearing and cessation of the intumescence of the turbinates.

Case 8. J. H. W., recurrent attacks of deafness in both ears accompanied with some pain; formerly treated by two different "ear men," one removed the nasal septum, leaving a large perforation in the same but obtained no result in the ear condition; the other merely inflated twice a week and attempted pneumomassage with a Politzer bag; patient was prejudiced against the removal of his tonsils and importuned me to give him the routine treatment, which I did twice a week, obtaining temporary results, but with relapses at each new tonsillar infection. The ears showed red membranes and the throat an active tonsil infection and pharyngitis at each "cold" he suffered. When last seen the patient had difficulty in catching the meaning of normal conversation and felt often embarrassed at errors he made in conversation. The prejudice in this case was due to the advice of the "specialist" who made the large perforation in his nose.

Report of the Medical School-Examiner for the City of Rochester, N. Y., for the year 1912:

Total number of pupils examined.....	47,990
Defects of vision	3,805
Other eye diseases	441
Defects of hearing	340
Discharging ear	135
Defects of nasal breathing	1,982
Hypertrophied Tonsils	6,436
Adenoids	577

This means that one child in ten suffers from eye disturbances while one in five suffer from causes that lead to defects of hearing.

I think that this report shows that our children are more likely to have defective hearing than defective sight and that it is our duty to look well to causes of deafness even in early infancy and to repeat the inspection of the child throughout his school period in order to prevent as far as possible the unfortunate 20 per cent from

becoming a burden to themselves and also in some measure to the State.

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113 South Tenth Street.

DISCUSSION.

Dr. J. T. Whitlock, Mt. Vernon: Those of us who are associated with Dr. Edmondson here know something of his work. He has done excellent things since he has been with us. I want to thank him for his paper; it is a good one.

Dr. A. M. Corwin, Chicago: Dr. Grinstead just asked me to point out these relations from the back of the tongue. Now, we have the lingual tonsil. That is a matter purely for the specialist in our line to handle. It occasionally gives us trouble, gives symptoms that interfere with the comfort of the patient.

Dr. Harry Moss, Albion: Pardon me, Doctor, that lingual tonsil interests me. I have a case just now of chronic cough, referred by me to a specialist, who claims that it is due to enlargement of the lingual tonsil and advises the touching of the lingual tonsil with a five per cent silver nitrate solution every day.

Dr. Corwin: Usually, the five per cent. solution does not do much good in these cases. There should be proper surgical measures taken, or the galvanic cautery properly used.

If the patient gags while you are looking into the throat, you will see a bulging that becomes white behind the anterior pillar. You have there what the late Dr. Pyncheon called a submerged tonsil, and it is these crypts which come down in this region which are upright and hold their secretion that do the harm. You cut off part of the tonsil and leave them, and you are going to have trouble there. So the dissection method by whatever means we use, a thorough dissection, without mutilation, is the thing in tonsillectomy. Any tonsillectomy is no light job, it is a hospital job, as Dr. Burkhardt has well said.

We will not discuss the function of the tonsil today; it is their relation to the local, the regional and the systemic symptom complexes that interests general practitioners, surgeons and specialists. When a patient comes to you as a general practitioner, sit down and study that family and get into their confidence, go into the subject of little Mary and John and find out about their throats, their tonsils, etc., and it will have an effect on your practice that will sur-

prise you. You are not taking up something which is not your business, but you are looking ahead before trouble develops; you are using one of the highest privileges of a physician.

Dr. A. C. Housh, East St. Louis: I merely wish to ask for a little information that might be of benefit to the general practitioner, as we all have these cases to do. The question of hemorrhage comes up. Now and again I speak to a man and say, "Do you have any trouble with hemorrhage; that is, when you do a good operation?" "No, that never troubles me," he will say. "I never have any hemorrhage that is alarming." Five or ten months later, or maybe a year or two later, you ask the same question. "Yes," he will tell me, "an alarming hemorrhage from hemophilia," or a tendency to bleed. I have had some trouble along that line, too, where I did not include the anterior pillar.

I used to do these operations in my office and considered them a minor affair. I have quit that. I do no more tonsillectomies in the office. If they cannot go to the hospital, I would rather not touch them. I consider tonsillectomy now a major operation. Now in going over the records and in studying these cases, you will find some of them anemic, the child is droopy, anemic, the blood pressure is low, and I have adopted the routine in these cases of giving them for about three weeks beforehand—that is, where I suspect undue bleeding may take place, or there is a history of some tendency to hemophilia—of giving the thyroid extract, not in large doses, for about three weeks. I also give iron and arsenic, of course, at the same time, as they usually need them, too. Then, about two days before the tonsillectomy I give the calcium chloride in large doses. A child of ten to fifteen years will get forty grains a day for two days. I imagine—maybe I know and I think I do know as far as I am concerned myself, but before these three men of vast experience I won't say I know, but I ask them for information—I imagine this controls to a great extent the hemorrhage in many cases. A number need no preparatory treatment, but I believe this treatment, this calcium chloride especially, is of value. If you overdo it, give it three or four days, I believe you increase the liability to bleeding, but I believe that I have noticed much less bleeding with the employment of this treatment.

Dr. E. E. Edmondson, Mt. Vernon, closing: In reply to the question as to preparation of my patients for operation for removal of the tonsil, there are various methods. Among instruments, the Sluder-Corwin is a good one, the Tydings snare and knives are a good combination. I have had no serious case of hemorrhage, have not had any postoperative hemorrhage. But I might have one next week. But the removal of the tonsil by means of dissection is done in some manner like this: I insert the knife, which is a knife curved on the flat side, cuts on one side only and not on the end, is blunt on the end. I pass this up in the fossa triangularis and turn the end down and do a blunt dissection between the pillars and the tonsil.

(With the tonsil on traction?) No, there is no traction used. That is the only instrument in the throat until I reach the base. Then the tonsil is drawn out, and with a small knife, if there are any adhesions, I remove them carefully, then apply the snare or use the Sluder-Corwin instrument. I have both in the office. I have used everything that anybody else has used while senior interne in the Eye, Ear, Nose and Throat Service. Suppose I use the Tydings instrument. I would apply the cold wire snare and work it back deep into the base of the tonsil and enucleate the tonsil by a very slow grip on the instrument. I use in the snare a No. 9 wire. I remove the tonsil gradually, choking the vessels off. As you know, a wagon wheel that runs over a man's leg and crushes it, or a train that runs over it and crushes it, does not produce the hemorrhage that would result if the man had fallen against a saw or had been cut with an axe. The hemorrhage, practically, is controlled by that. With a small piece of cotton or gauze dipped in 95 per cent. alcohol, squeezed out and forced into the fossae of the removed tonsils, and held there for a few minutes, there is very little hemorrhage.

Now, as to the control of hemorrhage, I have found that the prophylaxis is better than a whole lot of the treatment. An ounce of prevention is worth more than a pound of cure. I keep the blood pressure down by forbidding the patient during that day to take anything to eat or drink; I have him remain quiet, see that he does not exercise and by his movements force an increase of blood pressure; and then I have him, when he does take anything, take it in the form of iced tea or iced milk and ice for the first twenty-four hours. While I have not had any trouble, I might have without these precautionary measures. I do not allow the patient to talk, clear his throat, or that sort of thing; in other words, the activity of the throat is stopped. If blood runs down into the pharynx the patient has to let it run; there is not much. The only case of hemorrhage that I have had at all followed an operation done under a local anesthetic, which resulted from a violation of the instructions regarding complete rest of throat and body, and it was almost immediately controlled by ice applied to the throat inside and out.

VINCENT'S ANGINA.

WITH REPORT OF A FATALITY FROM GANGRENE
OF THROAT FOLLOWING APPLICATION
OF PHENOL.

J. Z. BERGERON, M. D.

CHICAGO, ILL.

Definition: Arrowsmith¹ defines this affection, as a "disease characterized by the formation of a membranous exudate on the part involved, and with erosion or ulceration of varying extent in the subjacent tissues; by more or less pronounced

¹Read at meeting of North Shore Branch of Chicago Medical Society, Oct. 6, 1914.

implication of the neighboring glands and by constitutional symptoms of irregular severity."

History: Vincent² described the disease and its causative organism in 1896, but two years previously (1894) Plaut had also described similar cases and referred to a still earlier work by Miller in 1883. Vincent's subsequent investigations, however, were more thorough and of more value than those of earlier authors, and for this reason the disease is usually given his name, though also known by the name of Plaut-Vincent's angina.

Bacteriology: The causative organisms in this form of angina are a fusiform bacillus and a spirillum. The bacillus is a true anaerobe and will not grow on ordinary culture media, but has been isolated and grown on special media—blood-serum agar and glucose agar. It is from three to four microns in length and from one to three microns in width. From the wide center it tapers gradually to the ends. It is readily stained by methylene-blue and Giemsa's stain and negative to Gram. Some authorities claim that it is motile, others that it is non-motile.

The spirillum is longer than the bacillus and is made up of three to four shallow and irregular undulations, stains with more difficulty than the bacillus and is also negative to Gram. Can be cultivated under anaerobic conditions.

Lasagna³ has made some experimental researches concerning the bacillus, and his conclusions are instructive. The results of his studies of the bacillus in the one case in which he was successful in isolating it in culture are as follows:

Injecting the fifteen days culture into animals never produced death, but merely a localized necrosis. I also took sloughing masses from the ulcerated surfaces of the angina, and inoculated them into the mouth and skin of guinea pigs; then I obtained extensive rapid necrosis at the site of injections.

The conclusions drawn by Lasagna from these experiments are that the bacillus lives in symbiosis with other micro-organisms in the microbic ulcer, and together with them determines the initial lesion; after a few days it dominates and sometimes maintains the lesion. Since necrosis can be produced in animals it is evident that in necrotic angina the fusiform bacillus plays the principal part in the development of the disease. But since guinea pigs inoculated with necrotic tissue show more serious and more rapidly developing lesions than those in whom the fusiform bacillus alone was injected, and because in the pri-

mary stage of the ulcer Vincent's bacilli are scarce and the other micro-organisms numerous, we must conclude that to the latter are due the initial lesions and the increase in the pathogenic power of the bacillus during the course of the ulceration.

Furthermore, because of the fact that when the bacillus is injected by itself, necrosis is produced, and since in man pharyngeal ulcers assume necrotic characteristics after its appearance, Lasagna concludes that "Vincent's bacillus may be regarded as specific for necrotic angina."

As to the part played by the spirillum and its relation to the bacillus, opinions vary. Halsted⁴ writes:

Since the discovery of Vincent's angina, there has been much difference of opinion among bacteriologists as to whether the specific organisms, the fusiform bacillus and the accompanying spirochete or spirillum were in reality two distinct organisms, living in symbiosis, or simply one, the fusiform bacillus; the spirochete or spirillum being merely evolutionary forms of the former, but always found present with the bacillus.

Vincent and the majority of writers believe them to be two separate organisms. Some recent experiments, however, indicate that the fusiform bacillus is very polymorphous, and that cultures grew "filaments and decidedly spiral forms (Tunncliff⁵), indicating that the spirillum is only one form in the development of the bacillus. The matter is still under discussion.

Frequency of Occurrence: Reported cases of Vincent's angina are not as common as could be expected. Halsted⁴, Holm⁶ and others believe, however, that it is not as rare as the reports indicate, and that its apparent rarity is due to faulty diagnosis in cases of pseudo-diphtheria, etc. Halsted points out that this is probably due to the fact that in most cases of suspected diphtheria only the cultures are examined, and as the Vincent bacillus does not grow on ordinary culture media, it naturally is not found by such methods. A direct examination of the smear from the diseased tissues should be made.

Again a failure to find the bacillus may be due to a lack of persistence. If the bacillus is not found at the first examination, repeat the search day after day because the bacilli become more numerous later on in the affection and will be more easily found.

Pathology: The typical lesion of Vincent's angina is a more or less sloughing ulcer covered with a whitish or grayish pseudomembrane, the removal of which reveals a bleeding surface. The

membrane soon reforms. Arrowsmith¹ says that "on casual inspection the membrane resembles very closely that observed in diphtheria. It is of soft consistency and, after a few days, is usually thick, cheesy and friable. At the border of the exudate, which is irregular, there is a zone of redness and edema more or less intense."

Location: Usually the tonsils only (either one or both) are ulcerated, but the ulceration may extend to the soft palate, uvula, pharynx, buccal cavity, and, in the more malignant cases, to the larynx and bronchi.

Clinical Types: Two types of Vincent's angina may be distinguished; a mild form and a malignant form. In the mild form is seen a purely local ulceration, which closely resembles the throat lesions of syphilis. The ulcers, single or multiple, superficial or deep, are covered with a pseudo-membrane and resemble the mucous patch or the tertiary ulcer. They heal by cicatrization. There is considerable pain and foul odor from the breath. The cervical glands may be tender and slightly swollen, but the general health is not much impaired.

In the malignant form, however, the picture is different. In this type the affection closely resembles diphtheria; the ulceration is usually quite extended and often accompanied by general membranous stomatitis. There is a tendency to necrosis with destruction of the parts. There is much pain on swallowing and marked fetor of the breath. While there is only a slight rise in temperature, the pulse is rapid, and prostration and nervous irritability are usually severe. This type may also be a secondary infection to diphtheria, scarlet fever, measles and other infectious diseases. Dr. Leo Green even advances the view that noma or cancrum oris is but an aggravated form of Vincent's angina neglected at its inception.

Diagnosis: The diseases that Vincent's angina more nearly resemble than any other are syphilis and diphtheria; and, while differential symptoms are mentioned as an aid in eliminating the one or the other disease, still a positive diagnosis can only be made by a bacteriological examination of the smear and the finding of the fusiform bacillus associated with spirilla. In this connection must be borne in mind the fact that in the early stages of the disease the bacilli are scarce, but more numerous later on; consequent-

ly if the bacilli are not found at first, the search must be continued from day to day, and thus the probabilities of recognizing this affection will be materially increased.

Prognosis and Recurrence: As a rule the prognosis as to recovery is good except in the laryngeal and bronchial types, when death has been known to occur. Recurrences of the infection are reported, consequently one attack does not confer immunity, nor on the other hand has it been shown that one attack predisposes the patient to a second.

Treatment: The treatment consists in local applications, thorough hygiene of the mouth and teeth and treatment to upbuild the general health. Many drugs have been recommended for local application, chiefly iodine, nitrate of silver and potassium chlorate. These are usually combined with some mild antiseptic solution applied with a swab to remove the slough. Richardson⁷ uses a 5 per cent solution of nitrate of silver applied daily, and Wherry⁸, a 12 per cent solution. Place⁹ uses a 2 per cent solution of chromic acid once daily, after swabbing away the slough with hydrogen peroxide. Halsted⁴ uses trichloroacetic acid every two or three days after preliminary swabbing with hydrogen peroxide, and anesthetizing the ulcer with a 10 per cent cocaine solution. Dr. Leo Green¹¹ paints the surrounding tissues with melted vaselin and cauterizes the ulcer every two or three days with trichloroacetic acid in 4 per cent novocain. The mouth is irrigated with 0.5 per cent solution of formaldehyde. Four cases were well in 4 days, two in 6 days and one in 8 days.

French and German physicians have recently employed salvarsan in the treatment of Vincent's angina. Ehrlich uses the intravenous injection method and the French have employed local applications. Dr. Achard¹⁰, in a recent article, reports two cures by the local application of salvarsan first in solution and then in powder. Halsted⁴ believes that salvarsan should be tried in cases that do not yield to other treatment. Dr. R. A. Greene¹² recently has reported four cases treated by the intravenous administration of salvarsan in which the throat cleared up in 6 to 7 days.

The following case report is added to illustrate, not so much what should be done as what should not be done.

Case 1. Mrs. W., aged 32 years, first came under a physician's care on May 5, 1912, and on May 9 another physician took charge of the patient because of the first physician's illness. At this time there was very little constitutional disturbance, slight elevation of temperature and general malaise. The throat at the time was very painful, especially when attempting to swallow, and enlargement of the cervical glands was noted. The right tonsil presented a bean sized, rather sharply defined ulcer about the center, the base of which was covered with a rather dirty grayish adherent exudate. The surrounding tissues were acutely inflamed, showing bright angry redness. The physician in charge, thinking he had to deal with a streptococcic angina, prescribed a mixture of hydrogen peroxide, alcohol and water to be used as a gargle once every two hours; the throat was swabbed with 8 per cent argyrol solution every four hours and a gargle of boric acid ordered to be used in the intervals. A cathartic was given and sodium salicylate prescribed, ten grains every four hours. Under the treatment the physician said that the throat showed very little change, and about the sixth or seventh day of his care of the patient (May 15) he began to realize that he was dealing with something more than an ordinary case of ulcerative tonsillitis, and in his eagerness to check the infection, made an application of carbolic acid. Several cultures made from the throat showed no specific organism. May 19 the swelling showed signs of increasing, and a patch appeared on the left tonsil. The original area of infection (on the right tonsil) began to take on a gangrenous appearance, and the first real putrefactive odor was noticed.

I first saw the patient May 20, at which time she showed general evidence of sepsis; temperature 103; pulse 110; color of skin grayish and facial expression anxious. The right tonsil, uvula and base of the tongue was one gangrenous patch, and there was a small gangrenous area in the soft tissues above the left upper canine tooth. A culture and smear were made and tincture of iodine applied. The results of the bacteriological examination of both the culture and the smear showed the presence of the fusiform bacilli and spirilla.

I did not see the patient again until May 24, when she was sent into the city to be placed in a hospital. At that time a fatal termination seemed inevitable; the gangrenous distribution had progressively extended; temperature was 104.5 and pulse 140. On the next day, May 25, the patient died of general sepsis.

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INDIGESTION.*

E. O. LAUGHLIN, M. D.,
PARIS, ILL.

The subject of disease of the digestive tract is becoming a hackneyed one in this society, and as an excuse for opening the subject again today, I am going to present some statistics.

In looking over my records I have chosen at random the diagnoses of cases coming under my notice for one average week, excluding those of a surgical nature. I happened to take them from a week in October when there was very little acute illness and they represent mostly office cases, but I think they are fairly typical of the average practitioner's ordinary routine experience.

The list includes one case each of locomotor ataxia, chronic interstitial nephritis, diabetes mellitus, diabetes insipidus, malaria, senile dementia, cold and goitre; two each of bronchitis, tonsillitis, intercostal neuralgia and cystitis; three of rheumatism and three of arteriosclerosis, of which one has marked digestive disturbance; four of pulmonary tuberculosis, all with bad digestion. Of the rest all represent or are accompanied by diseases of the alimentary canal. Tabulating these I find one case of simple diarrhea, three of neurasthenia with marked gastric and intestinal distress; one of migraine, probably of toxic origin; one of epilepsy, which I think due to chronic auto-intoxication; five of biliousness—not a scientific but a very satisfactory diagnosis—four of acute indigestion; and eighteen of chronic gastric or intestinal indigestion.

Thus I find that 57 per cent. of all cases presenting themselves during the week were suffering from some form of indigestion.

Of the eighteen chronic cases one had symptoms of gallstones and one of gastric ulcer; four presented evidence of intestinal fermentation, due to constipation and stasis. The remaining dozen cases belonged to the common category of dyspepsia, ranging from slight distress, flatulence

*Read before Edgar County Medical Society, Nov. 18, 1914.

and palpitation after eating, to acute pain, nausea and general malaise.

In our older textbooks we were taught to classify our chronic gastric cases as atonic dyspepsia, in which motility is decreased and the secretions diminished; chronic gastritis, with pain, vomiting and catarrhal symptoms; hyperacidity of the stomach; ulcer and cancer.

Nervous dyspepsia was to be treated with stomachic tonics, pepsin and hydrochloric acid; gastric catarrh with astringents, sedatives and lavage; hyperacidity with alkalies, etc.; while intestinal fermentation required cathartics and antiseptics. At the same time great stress was laid upon diet.

Clinically we do not always find the lines distinctly drawn among these various types of trouble. What was termed atonic dyspepsia we find frequently due to disease in some remote organ. Hyperacidity is usually of nervous origin, while intestinal fermentation is very commonly due to some mechanical interference or displacement of the bowel.

Neither do we find the symptomatic treatment, outlined in the books, always satisfactory. Personally I have seen very few patients benefited by any preparation or dose of pepsin, and I doubt the advisability of administering hydrochloric acid for any long period of time. Among stomachics I have found hydrastis and nuxvomica of value; most others inefficient and inferior.

Back of every case of disease of the digestive system is a cause. This cause is either nervous, mechanical or bacteriological. In the nervous group I include all so-called sympathetic cases, in which digestion is disturbed by direct irritation of sympathetic nerves or by the depressing influence of toxins; also that numerous class of cases in which worry and imagination play an important role. As mechanical I class those due to faulty habits of eating too rapidly and too much; also those cases due to visceroptosis. I have some doubt as to whether the bacteriological class exists at all, as a fundamental class. No doubt the fermentation in these cases is due to the action of bacteria, but why the intestinal bacteria should be overactive in one patient and not in another of similar habit needs explanation.

I am convinced that stasis is the principal causative factor in most cases of intestinal fermentation; that the lack of efficient peristalsis

permits the food to remain in the bowel too long, thus prolonging the natural fermentative process beyond physiological into pathological bounds. Many gastric cases, too, are, I believe, produced by delayed peristalsis. Not long ago a middle-aged woman of robust build presented herself to me with the single symptom of distress in the stomach at night. This condition often lasted until nearly morning, when she was conscious of the stomach emptying its contents into the duodenum, and thereafter felt relief. Examination revealed a slight downward and forward displacement of the hepatic flexure of the colon and a somewhat dilated stomach. She was placed in the Trendelenburg position, the abdominal contents forced upward and adhesive strips applied. A week later she reported that she had been promptly and completely relieved of all symptoms. How permanent the result will be remains to be seen, but I think her immediate relief proves that her trouble is mechanical.

Most cases of enteroptosis are doubtless surgical in their nature and can be completely cured by operation only, but many of them can be greatly alleviated by suitable abdominal support and medication. There is a class of these cases, not of congenital origin, in which a loss of tonicity and decrease of intra-abdominal fat seem to be the chief factors. These patients are usually women past middle life, with flabby, pendulous abdomens, anemic and below par generally. Besides abdominal distress, they often suffer from some degree of hyperacidity of the stomach. These patients are benefited by measures which delay fermentation and promote peristalsis, such as the administration of salol, the sulphocarbolates and cultures of the Bulgarian bacillus, and paraffine oil, mineral waters and the like. If to such medication we add an efficient mechanical support to the prolapsed viscera complete restoration to health often results.

Diet is an important element in the treatment of all digestive disturbances, yet I am inclined to think the matter of dieting our dyspeptics is often overdone. Most of them come to us eating too much or too little. More often the adjustment of diet should be quantitative than qualitative. Neurasthenics have often excluded this article of food and that from their diet, until, like the traditional farmer's horse, they are trying to

live upon a straw a day. They should be put upon a liberal and well balanced ration and encouraged to forget their stomachs.

Cases of true gastritis and ulcers, of course, require strict dieting. In such cases the diet should be rigidly enforced until relief is obtained and then a full diet should be insisted upon.

The main point in the handling of the multi-form phases of indigestion is to be thorough in examination. Subjective symptoms are often similar in cases which differ greatly in etiology.

In all chronic forms of trouble, the patient's abdomen should be bared and the various organs examined carefully. The size and position of the stomach should be outlined by percussion; the liver and gall bladder should be investigated; also the appendix; and an effort made to outline the position of the colon. Inspection alone will often reveal a sunken area just below the epigastrium, with a visibly pulsating aorta—a condition almost pathognomonic of coloptosis.

When the relations and condition of all the adjacent organs are found to be normal, the stomach, itself may be considered primarily at fault. Excluding ulcer and cancer, the purely gastric disturbance will usually be found to be a condition of hyperacidity or catarrh. The stomach tube will sometimes be needed for the final test. Large quantities of mucus mean catarrhal gastritis. Lavage with a solution of bicarbonate of soda will generally relieve it. Hyperacidity is often sufficiently evident from the symptoms of burning, sour eructations, etc. If not, a test meal and analysis will make the diagnosis plain.

Functional hyperacidity often accompanies a condition of so-called acidemia; and besides the gastric discomfort these cases frequently complain of irritable bladder, stomatitis and aches and pains throughout the body.

For this condition, I have found a combination of magnesia and hydrastis very serviceable.

In conclusion: If we can successfully combat the protean forms of indigestion, we can not only add to the comfort and usefulness of our patients, but protect them against all forms of infectious diseases and forestall the eventual development of nephritis, arteriosclerosis and other results of autointoxication.

Equipped with a healthy alimentary canal, a man can defy three-fourths of the maladies to

which human flesh is heir—even old age, itself, may be indefinitely postponed by a sound digestion.

COLIPYELITIS.*

B. G. R. WILLIAMS, M. D.,
PARIS, ILL.

Pathologically considered the bladder is to the urinary tract what the stomach is to the alimentary tract. Primary gastritis is rarely met; the same holds true with primary cystitis. Practically always bladder symptoms are secondary to other lesion. In alkaline cystitis we have to deal with stone, tumor, enlarged prostate or other mechanical condition resulting in stasis of the urine, its decomposition and so on. So-called "acid cystitis" in ninety-nine cases out of the hundred, is not a cystitis but a "scalding" of the vesicle mucosa or reflex phenomenon, the lesion in either case being higher up. Such is the case with renal phthisis. The same may be said of most infections by the colon bacillus. Within the past year alone I have come into contact with over sixty cases where it was definitely proven that the colon bacillus was the criminal, and the following observations have suggested themselves for practical consideration:

Etiology: Colipyelitis is essentially a disease of females. Now and then a male is affected, but for some unknown reason the weaker sex is more prone to the disease. Age counts for something. The disease is more frequent in young women and often occurs in female babies. It is especially frequent in young married women especially if pregnancy is delayed. It is worse in severity as a rule near the catamenial period and often disappears with the next conception. Among predisposing factors may be mentioned physical overtaxation in a young woman. In one case raking the leaves off a yard, in another a big washing appeared to be directly responsible. The disease is likely to follow typhoid. I noted in one neighborhood four cases at the same time in adjoining houses. Season appears to have but little bearing on the etiology. The specific virus is a member of the colon-typhoid group of bacilli but more nearly related to the *B. coli communis*, the natural inhabitant of the bowel.

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If identical, through some peculiar exaltation it has acquired pathogenic qualities.

Pathology: Colon infections are often considered "fecal infections." As a matter of fact the colon bacillus may have yielded many of those properties which it possessed as a saprophyte. In closed abscesses a very marked fetor not unlike fecal gas may develop, and the pus may be brown and like syrup. But in colipyelitis an odor is rarely detected. A few years ago we thought that infection occurred between the anus and the meatus urinarius, and that this infection was ascending. Now we know that these infections are usually hematogenous. They are always hematogenous, of course, where colipyelitis or colon perirenal abscess follow colon bacillus skin abscesses. We know that over 75 per cent. of all bacteria in the stools are dead and the rest perhaps attenuated and hence comparatively harmless. Moreover colon infections of the urinary tract are not especially frequent in the puerperium; all of these facts pointing rather to hematogenous infection.

We are likely to find in these urines pus, high acids and specific rods. The second find is invariably present at all times. Either or both of the others are present at times. In one case referred by Dr. A. clumps of rods and high acids appeared several days before the pus. In fact the diagnosis was made before a single cell was found. These came suddenly and clouded the urine within an hour or so. In another case referred by Dr. C. the pus appeared with the symptoms but the rods could not be found and renal tuberculosis was suspected. In three days the pus had decreased in amount but in the fresh urine the clumps of bacilli were so thick that macroscopically they made up almost half of the sedimented urine. I might state here that in the female where vaginal contamination is suspected it is neither necessary nor desirable to catheterize. Collect rather in several sterile glasses. If a pyelitis the last urine and middle urine should both contain the pathological debris.

In relapses any of the three finds may recur. High acid always is noted. Pus or rods but rarely both, may be absent.

It is unnecessary to go into laboratory identification methods. Every bacilluria is not a colon bacilluria, and great pains need often be taken

to rule out a typhoid bacilluria. Fresh specimens are always collected under strictly aseptic conditions.

Symptoms: These are of three classes from which there may be any mixture. In some patients there may be an alternation of these classes:

1. Lumbar or abdominal distress usually unilateral. May be no pain but merely a tenderness over kidney.

2. Bladder symptoms, irritation, frequent urination, etc. This is essentially a reflex phenomenon or else the urine "scalds" the bladder mucosa. The lesion is higher up invariably.

3. Chills and fever with accompanying symptoms of headache, etc. Chills may be absent and I could point out several cases in which typhoid was diagnosed until the other symptoms or chills gave the clew. As I have stated above the infection may follow true typhoid. It occurs during convalescence and may be initiated by chills and fever. Other symptoms may be absent. Always examine the urine. Fever in baby girls is suspicious. Be loath to diagnosticate typhoid without extended urinalyses.

Prognosis: We shall mention complications below. Colipyelitis sometimes slays. As a rule it is not dangerous to the patient if properly combatted. With serious symptoms the patient may put on flesh. It shows a tendency to hang on or recur. For this reason after the cure appears to be cinched, a course of treatment should be taken every few months.

Diagnosis: The proper path is self-evident. Because stone, tuberculosis, etc., may give similar symptoms these are sometimes suspected. Proper urinalyses will quickly rule them out. In at least three cases, because of the chills, gall bladder infection had been suspected. Typhoid fever is the stupid conclusion arrived at by one who neglects or belittles laboratory aids. I have seen at least two physicians eat dirt for this very mistake. I shall cite a case in conclusion (see below) where appendicitis was suggested.

Treatment: Known the habits of the colon bacillus he can be conquered with ease. It is a habit in considering the treatment of almost any disease to note the value of rest. But there are three diseases where the value of rest should be emphasized: Gonorrhea, hyperthyroidism and colon infections of the kidney pelvis. Even as

overexertion has been noted as a predisposing factor in the etiology, so may rest be accepted as a valuable therapeutic procedure. Just as long as the young lady teacher persists in standing on her feet, just as long as the housewife continues to sweep, scrub and iron; just as long as the high school girl continues to attend several dances a week; just that long can you promise her no relief. Concerning drugs, three lines of treatment are advised. First of these is the alkaline treatment. Do not be afraid to give large doses else you will aggravate rather than check the disease. Ofttimes the acidity is tremendous. Grow the colon bacillus on litmus-glucose-agar if you doubt his acid elaborating qualities. Test the urine frequently and keep the reaction distinctly alkaline. Then we have the urotropin method of treating all infections of the urinary tract. Give 15 grains three times a day for several days. Rest a couple of days and repeat the dosage. Most physicians give but 5 grain doses, but did you know that it has been shown that 5 grain doses will not liberate formaldehyde into the urine? Better give none. The third method which I will suggest is the alternate treatment. This I devised several months ago and have recommended it to the attending physician where I have been called as consultant. For three days the alkaline treatment is pushed. For the next three days the urotropin treatment is pushed. The next three days pass without treatment and then the process is repeated. The colon bacillus will soon run up the white flag. It may interest you how I devised this treatment. Finding a colon infection in the urine I would say, "Doctor, why don't you try urotropin?"

"That is just what I have been doing."

"In large dosage?"

"Yes, indeed!"

In such case I would advise the alkaline treatment as a substitute. I found that cases where the alkaline treatment had failed yielded soon to the urotropin and vice versa. Some of you may wonder why I did not advise a mixed treatment. I will tell you. The urine must be acid for the formaldehyde to be liberated from the urotropin.

I hear you suggest the vaccine treatment? This is worthless. Else there would be no colon infections of the urinary tract. The colon ba-

cillus (hence his vaccines) are part of the human anatomy. He enters the colon of the babe and takes up a permanent residence a few hours after birth. The colon bacillus of the colon infections gains new properties to be pathogenic. Raise him on artificial media and he loses these very properties. Colon vaccines are worthless, therefore, from a theoretical standpoint. A few trials will convince you of their clinical shortcomings.

Complications: Colipylitis is often a complication of abscesses (especially ischiorectal), appendicitis, typhoid fever, etc. Upon the other hand there are few complications of colipylitis. Renal tuberculosis has been suggested. In some cases tuberculosis appears to have succeeded colon infection, but as a rule the infection was tuberculous at the onset. Careful urinalyses, haemanalyses and studies of symptoms would have demonstrated this.

Conclusions: In conclusion I desire to present one especially interesting case of colipylitis showing the value of history records. It will be especially interesting to begin at the last and work backward. A woman takes suddenly ill with vomiting, pain in the right flank, leukocytosis, slight fever, increased pulse frequency and other features pointing conclusively to appendicitis. Wait. Inquiry reveals a peculiar history extending many months back. At every catamenial period she suffers from "bladder symptoms." A few hours later the "appendicitis" ends by a flow of pus, colon bacilli and excessive acids in the urine.

Let us go back a bit further. Two years preceding this woman had a severe chill followed by abdominal distress, bladder symptoms and other features typical of a colipylitis.

Let us go back a bit further. Two years before this time the woman had been afflicted with a series of six severe ischiorectal abscesses. The last of these when opened loosed a brownish thick pus with the most horrible odor which could be imagined. Now it is easy to follow the case in the forward direction, especially so when we recall the surgical advice proposed many years before the existence of colon infections was known: "Infections of the kidney are likely to follow certain cutaneous abscesses, especially certain ischiorectal abscesses."

THE RELATION OF TRAUMA TO APPENDICITIS.*

CHAUNCEY SHERRICK, M. D.,
MONMOUTH, ILL.

This paper is prepared for the purpose of describing three cases of appendicitis with a distinct traumatic history, with some reference to literature bearing on the subject.

The naturally protected position of the appendix, lying as it does against the posterior abdominal wall, and covered by intestines, would seem at first sight to render impossible any injury from direct trauma, unless of the most severe character. There is abundant evidence, however, to the contrary, and the medico-legal complications which may arise in cases of appendicitis, occasioned by such common and apparently trivial injuries as a blow, a kick, a contusion, or even a violent strain, are numerous and interesting. From this standpoint traumatic appendicitis becomes of importance to the physician.

Case 1. A young man, plowing in a field full of stumps, received a severe blow in the right side of the abdomen by the handle of the plow. This injury was immediately followed by severe pain, although he was not confined to bed until the following day. The ordinary symptoms of appendicitis followed and he died on the fifth day, operation having been refused. The autopsy showed peritonitis, a perforated appendix with a concretion lying in the perforation. No history of previous attacks could be obtained, but the post mortem findings clearly showed the existence of pathology previous to the injury.

Case 2. A traveling salesman, by the derailment of an interurban car, was thrown violently against the back of the seat in front of him, his abdomen receiving the chief impact of the blow. The severe pain felt at first soon disappeared, but returned again a few hours later with all the symptoms of appendicitis. Operation revealed a perforated, gangrenous appendix. In this case a history of two preceding attacks was obtained. I was interested to note that the interurban company settled with him promptly as a personal injury case, and his accident company paid his claim in full.

Case 3. I saw by the courtesy of Dr. McCoy, of this city, a boy, aged six years, who was struck in the abdomen by the elbow of his older brother, while in some sort of rough play. He immediately complained of severe abdominal pain, which continued with vomiting and the ordinary symptoms. He was not seen by a physician for three days, and was then immediately operated on. A peritonitis was found, a red, thickened, perforated appendix, the mucous

membrane of which was gangrenous, while corresponding to the perforation there was a firm, oval calculus, as large as an orange seed. Recovery took place.

My personal interest in traumatic appendicitis was aroused by the first related case, which occurred in 1887, and at that time I should have hesitated very much if I had been asked before a coroner's jury to state if an injury could be the direct cause of appendicitis. At that date our knowledge of such cases was very imperfect. At the present time I could assert with a clear conscience that there might be a distinct demonstrable connection between the lesion found in the appendix, the manifest cause of death, and the injury which preceded it.

Careful history taking will demonstrate that the number of cases in which appendicitis is associated with injury is much greater than is usually credited, but the analysis of these cases will show in a large per cent previous attacks or prominent symptoms also can be demonstrated. In addition, we all know that foreign bodies, fecal concretions, strictures of the appendix, adhesions, etc., are frequently present without having caused any symptoms or suggestion of any trouble in the right iliac fossa. It can readily be seen how such conditions would lead to error in cases in which a history of a previous attack was not obtainable, and in which an acute attack supervened upon an injury. On the other hand, it is a curious fact that patients are prone to account for tumors, especially in the breast or abdomen, by a fall, or a strain, but in acute abdominal conditions, beginning with colic, the attention is turned in an entirely different direction, and an indiscretion in diet is their first thought when asking an explanation of their malady.

W. B. Small, of Lewiston, Maine, writing on this subject says: "I believe the true cause of the large per cent of cases of appendicitis in young men is found in the more frequent exposure to accidental injuries and strains, and to the strong contractions of the abdominal muscles necessary in their work. This brings the subject into prominence from a medico-legal point of view." He believes that accident insurance companies, or corporations, or individuals responsible for the results of accidents are as plainly liable in these cases as for a broken leg. He collected fifteen cases occasioned by trauma.

*Read before the Warren County Medical Society, Nov. 6, 1914.

Howard A. Kelly, in 1905, presents fifty cases of appendicitis collected from literature, which he considered due to previous injury. In some of the cases which he described, the duration of time between the reception of the injury and the onset of the appendicitis was so great, and the connection appeared so remote, that it was hard to agree with the author that these cases were those of true traumatic appendicitis. It is interesting to note in this connection that Kelly, writing with Noble in 1908, appears to have modified his views and now says that "trauma, especially a direct injury, is a somewhat frequent cause of an acute attack of appendicitis, when previous disease has existed. It has not been proven that trauma ever caused inflammation in a previously healthy appendix."

A most extensive study of the literature has been made by Deaver, and he has been able to collect 150 cases. He states that the writers produce no evidence to prove whether the injury actually preceded an attack of appendicitis in a healthy organ, or merely was the exciting cause of an acute attack in an appendix already diseased. In all cases reported in the literature, it is probable that the appendix was already diseased, and a careful study of these cases in detail will show that in a large percentage there is evidence to show that previous pathological changes had occurred in the appendix that were not recorded in the histories, or were shown to be present by an examination of the changes found in and about the appendix at operation or autopsy. He states that he personally never has seen a case of acute appendicitis occur in which injury was alleged to be the direct exciting cause in an appendix that did not show evidence of pre-existing disease. Similar statements are made by Fowler, Walker, Jungst, Schroth, Nothnagel, Anglade and others.

An appendix, bound down by adhesions from previous disease, or containing fecal concretions, or having other pathological conditions, may, as a result of blows on the abdomen or violent muscular action, be so far disturbed that an acute condition may be excited.

This question whether the appendix was normal at the time of the injury is of very great importance, for if the appendix was diseased, and therefore liable to an outbreak of inflam-

mation under slight provocation, the status of the defendant in a damage suit is manifestly improved by this fact.

It is the opinion of Jeanbran and Anglade that an attack of appendicitis which comes on later than two days after the traumatism, cannot be assigned to the injury as its cause, and if the patient recovers from the immediate effect of this traumatism, and inflammation involving the appendix should subsequently follow, it could not properly be attributed to the injury.

As a rule in a case of traumatic appendicitis there can be no allegation of negligence on the part of the plaintiff in bringing about or aggravating his condition, since he must have been entirely unaware of his condition until it was revealed by the surgeon's knife. On the other hand, it cannot be said that the acute attack would have occurred independent of the injury inflicted by the defendant, who becomes, therefore, liable for lighting the disease into activity.

In order to determine the degree of responsibility of the defendant it will be necessary to show how much violence was used, and to associate this factor with the previous condition of the appendix as revealed at operation or post mortem. In view of the grave consequences to the defendant involved in an action for damages, the physician who examines the appendix and surrounding tissues in any case with a traumatic history, ought to note carefully the presence or absence of any old adhesions or peritonitis, of rupture or perforation, of acute strangulation of the appendix. If it contains a large concretion, or if the patient has had previous attacks, and it can be shown that but slight violence was suffered, and that without intent to do injury, the status of the defendant will be that far improved.

When we consider the thoroughness with which Deaver has reviewed the literature on the subject of traumatic appendicitis, and realize that his large personal experience places him in a position to speak unquestionable authority, his conclusion can well be accepted in every particular. These conclusions in all essential details are hereby quoted.

1. From his personal experience, and from a study of the literature, trauma cannot be considered as ever being the direct exciting cause in a perfectly normal appendix.

2. An acute attack of appendicitis can follow a severe blow upon the abdomen, or be due to severe muscular strain, but in this case the appendix will be found to present evidence of some pre-existing pathological condition.

3. Acute traumatic appendicitis is observed most frequently in males on account of a more active life, and greater liability to strains and injuries, and between the ages of 10 and 25.

4. In an appendix previously diseased the liability to an acute attack supervening upon injury is in direct ratio to the degree of injury, and depends entirely upon the pathological changes in the appendix at the time of injury.

5. The mortality is very high in these cases on account of failure to recognize the condition until the disease is well advanced, the rapid gangrene and perforation which occurs, and the delay in operation.

6. When the history of a case is suggestive of traumatic origin, careful notes should be taken relative to the cause of the injury, and if operation ensues, a record should be kept of the pathological findings.

I hope that enough has been said to demonstrate that such a condition as traumatic appendicitis can exist, but that great care should be used in making such a diagnosis in view of the medico-legal complications which may result.

Good air has never done any one harm. The same cannot be said of bad air. Why then breathe bad air, when good air, as a rule, is easily obtainable?

Tuberculosis is the commonest of all diseases and by many people is still regarded as incurable. This idea is all wrong. Dr. Edward Cummings in the *Journal of the Outdoor Life* says:

"Tuberculosis is a curable disease. We cannot lay too much stress on this fact, we cannot publish it too often, because there are many people who still think that consumption is always fatal. This is because the general public gets all of its strong impressions of the disease only from far advanced and fatal cases. People do not hear much or think much about the cases that get well."

The great, big, important thing is the right kind of treatment at the earliest possible stage of the disease.

NEGRO DEATH RATES.

A study of the death rates of the negro, shown in the accompanying table, as compared with those of the white portion of Chicago's population, gives rise to some interesting conjecture as to the need for public education among the colored people now living in Chicago.

Since 1910 this portion of our population has increased from 44,306 to 47,279, with a corresponding rise in the death rate from all causes.

The average scale of wages among the negroes is low. Consequently, he is forced to live in dwellings which are oftentimes insanitary and unfit in every way. He is often poorly educated; needless to say, sometimes in complete ignorance of those things which contribute to public health. These factors, together with a possible racial susceptibility to some forms of disease, may account for the high death rate in tuberculosis, which is three and one-third times as great among the colored people as among the white. Also, in pneumonia, a dirty-air disease, the rate is 371.7 per 100,000 of population, as compared with 237.9 among the white people.

On the other hand, however, the negro appears to be practically immune to scarlet fever and diphtheria, the rate being 2.1 and 10.7, as against 18.8 and 38.0, respectively, among the white race, for these diseases.

Typhoid fever, a disease whose prevalence, it is almost needless to say, is amenable to proper sanitary precautions, shows for the negro a death rate of 23.6 and for the white a death rate of 13.4.

Death Rates of Negro and Total Population, 1910, 1912 and 1913.

	COLORED.		
	1910	1912	1913
Population	44,306	46,284	47,279
Deaths	1,075	1,211	1,175
Rate per 1,000.....	24.26	26.16	24.85

	TOTAL POPULATION.		
	1910	1912	1913
Population	2,195,551	2,294,711	2,344,018
Deaths	33,241	33,998	35,291
Rate per 1,000.....	15.14	14.68	15.05

Death Rates Chicago, 1910, Per 100,000 Population, U. S. Census.

	White	Colored
All causes	1495.1	2387.3
Typhoid fever	13.4	23.6
Scarlet fever	18.8	2.1
Diphtheria and croup.....	38.0	10.7
Tuberculosis of lungs.....	150.8	502.8
Other tuberculosis	9.0	36.5
Heart disease	130.7	285.8
Pneumonia	237.9	371.7
Bright's disease	111.8	208.4

And so on, the death rate for the negro is considerably higher in the majority of diseases, as compared with the entire population of Chicago, and compared with the white portion, is still more unfavorable.

—Bulletin Chicago Department of Health.

ILLINOIS MEDICAL JOURNAL

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FEBRUARY, 1915.

Editorials

TWILIGHT SLEEP.

In reviewing both the medical and lay literature of the last three months, it is at once noticed that a large amount of space is given to the above title. Soon we forget the tuberculosis cure of Friedmann or the discovery of the north pole.

Since midwifery has been taught as a science every effort has been made to reduce to the minimum the attending pains of labor, and it is rarely that we now find an obstetrician who does not use anesthetics in the practice of his art. Just so soon as a new anesthetic or anodyne is found, it is tried—as it should be—for the relief of labor pains.

A number of years ago scopolamin was highly recommended for this purpose. It was used with morphin, hyoscin, atropin, cactin, and other drugs of like character—with various results—depending much upon the enthusiasm of the attending doctor. This treatment was heralded from one end of the country to the other, but not with the same zeal as is done in the present wave of enthusiasm. After awhile the use of

these drugs for obstetrical purposes diminished with about the same rapidity with which they were so widely used.

The legitimate use, when indicated, of scopolamin-morphin anesthetics, spinal anesthetics and nerve blocking anesthetics, are each a distinct advance in surgical procedure, and will, no doubt, reduce the dangers and mortalities of surgery.

That scopolamin and allied drugs, including morphin, are excellent therapeutic agents in obstetrical practice, when used with intelligence, few will dispute. To use any of them in a routine way cannot but produce harm. After awhile, when experience has taught the facts as well as faults in this medication, these drugs will find the right place in the doctor's armamentarium, and we suspect it will prove to be a very useful agent for selected cases.

Under the present agitation, it is deplorable that a number of our American doctors are seeing fit to take advantage of newspaper publicity for the purpose of self-advertising. It is not pleasing to the profession to have these questions thrashed out in the daily press or monthly literary periodicals; neither is it pleasing to the profession to see the pictures and life histories of its members, together with clinic citations, spread on a page of a Sunday newspaper. Those who are guilty of such conduct are no better than, and should be placed on the same plane of respect as Lydia Pinkham. Still a far graver condition or danger will arise from this newspaper publicity. The number of morphin subjects among women will increase in proportion to the amount of newspaper publicity that is given this treatment, and this will tend eventually to condemn a drug that might otherwise be very useful to suffering womankind.

FOOT AND MOUTH DISEASE.

The people of Illinois are much interested in and quite likely to be much affected by the present epidemic of foot and mouth disease in the herds of this state.

Fortunately up to date there has been very little or no human infection.

At the present time there is much friction existing between the government and state officers, the state judiciary and the owners of dairy herds. This condition of affairs is keeping all

concerned in a state of anxiety, and is not helping to cut short the epidemic. It brings out the fact very plainly that all are working in the dark and that those in authority are not accomplishing all that could be desired.

The infection has appeared in 51 counties in Illinois, 9 counties in Wisconsin, 16 counties in Michigan and 18 counties in Indiana. Other states are just as badly infected. In Illinois approximately 575 farms have been infected and 538 herds have been slaughtered. These herds consisted approximately of 18,496 cattle, 23,268 hogs and 524 sheep, with an appraised value of \$1,252,651.97. The real value, of course, is much above this figure.

In Wisconsin 36 herds have been infected, 95 herds in Indiana and about 235 farms in Michigan.

According to the literature, there has been some human infection in European countries with no great mortality. Just what the mortality has been we do not know, but it is quite low and practically limited to infants. Whether or not the mortality rate is high, none of us cares to come in contact with the disease. Germany seems to be more affected than any other European countries, and statistics from the outbreaks there indicate the enormous commercial and economic loss.

The outbreak, which appeared in Germany in 1888, reached its height in 1892, when 1,304,299 cattle, 2,193,187 sheep and 4,238,262 hogs were affected with the disease. It gradually diminished after this time, but again reached very great proportions in 1899 when 1,885,774 cattle, 1,505,830 sheep, 814,862 hogs were affected. After that time the disease gradually diminished, although it continued to exist to a greater or less extent. In 1910 it appeared to gain in virulence, and in 1911 the affection was more widely spread than ever before in the history of that country. In that year 3,366,369 cattle, 1,602,627 sheep, 53,674 goats and 2,555,374 hogs were affected with the disease.

England has had more success in stamping out the disease than any other countries, but did it by a strict exclusion of cattle from the country.

The mortality in animals infected is very low and almost limited to young calves. In one of the early epidemics in Germany, out of 700,000 infected cattle, the mortality was 1 per cent. In

the Wuerttemberg epidemic of 1872 out of 50,000 infected animals there was a mortality of 3 per cent. Of course, in a highly malignant form, the mortality has been known to be higher. In the present epidemic the mortality owing to the disease is nil. In view of these facts, it is highly questionable whether slaughter of all animals on infected farms is justifiable, when one considers the immense economic loss to the country of such procedure and the uncertainty of the results, even under such radical measures.

Whatever the solution may be for the eradication of the disease, we certainly think our government officials have been very slow in viewing the importance of a violent outbreak. In each of our three previous epidemics the disease was traced to imported cattle, and in this instance the trouble is assigned to imported hides. We do not know if this is true, but the presumption is that it is correct. To have held the few head of imported cattle which this country received from European countries in strict quarantine a sufficient time to be absolutely positive concerning their health conditions, would have been trivial and of comparatively little expense, yet the government has permitted the three outbreaks from the same sources, and the *fourth* from a closely allied cause, thus jeopardizing the stock industry of the entire country, and also the health and welfare of the people.

How many more epidemics will be necessary to awaken the government to the danger of importation? The dissension now is about the method of eradication of the disease. The government and the state veterinarians want to slaughter and bury all animals found on a farm and subject to the disease as soon as a case is discovered. This may be the correct procedure—probably is—but more than three months' trial has evidently not demonstrated it to the satisfaction of all concerned; in fact, the method at present does not seem to have gained us very much, possibly because of intervention and hiding of the disease. Less opposition to any method of eradication would be encountered if the government would bear more of the burden and do it without such delay. There seems to be no good reason why the carcasses and hides of animals not infected should be sacrificed under government or state inspection. This economic loss should be avoided, and thus help the owner to

a considerable extent; but the government officials seem not to be able to see such small economies, neither do they seem to be willing, according to newspaper statements, to have scientific experimentation upon the dairy herd which were infected at the dairy show and have not been slaughtered. That the government should have its scientists experiment with this herd, and, if possible, discover the real virus and its habits, there can be no doubt. In all probability neither the slaughter nor quarantine method will be wholly successful until the nature and habits of the virus have been discovered and its manner in spreading contagion fought in a scientific way.

EFFICIENCY VS. ECONOMY.

Health is the greatest asset an individual, community or state can have. The prevention of disease, therefore, results in a great saving to the individual, community or state, and if the economic value of the Health Department could be figured in dollars and cents, the conclusion would readily be reached that no State Department ranks higher in importance than the Department of Health.

However, if newspaper reports are correct, the members of the Efficiency and Economy Committee, appointed by the last legislature, do not believe that the work of the State Board of Health is of sufficient importance, nor the services of the individual members valuable enough to justify the state paying the members either a per diem or a salary. It is not known that this Committee will advise the appointment of any other department whose members will serve without pay. It is quite certain that the members of this committee do not serve without pay and it is doubtful if their recommendations to the legislature will be of value if they recommend such economies as will prevent requisite efficiency.

Physicians serving in their professional capacity in hospitals, sanitarium, charitable institutions and state boards, without pay, have themselves to blame if the public should consider their services of no value. They further have themselves to blame for the reason it has been the custom for physicians to render their services free to hospitals and charitable institutions with

the idea that the prestige, the clinical experience, the publicity and the honor amply paid them.

Until recently medicine had not been commercialized. The result is that the medical profession has been one of the poorest-paid professions, and the public has been accustomed to seek the co-operation of the physician wherever his services would be of benefit to mankind at large. Times have changed during the last decade. The medical profession is becoming well organized. It realizes the progress in medicine and surgery has been so great and rapid that it is necessary to employ teamwork to secure the best results. Therefore, we find that the bacteriologist, the chemist, the pathologist, the internist, the surgeon and the specialists are co-operating, and each expects compensation for his work. The same principle should apply to the work exacted by statute from the State Boards. "The laborer is worthy of his hire," and no state should expect efficiency in any board, if the members of that board receive only honor.

The organized medical profession of the State of Illinois should see to it that the statutes are not changed so as to emasculate the State Board of Health and place Illinois in the rear ranks of preventive medicine. Now is the time to protest against unwise legislation. If the present Medical Practice Act and the Public Health Acts are modified, it may open the flood-gates for a deluge of bills that will place the efficiency of the Health Department of the State of Illinois in jeopardy.

TUBERCULOSIS AND CANCER.

In this issue of the JOURNAL are found several articles upon the two most important diseases of mankind—cancer and tuberculosis. Medical science, progressing so brilliantly in most lines, has not evolved the solution in either of the two conditions. So far as producing a prophylactic or a cure for cancer, scientists have really accomplished little, and the outlook would be ill indeed were it not for the fact that these workers are learning many things about the nature and habits of carcinomata. In the face of all the work and investigation that has been done, it will hardly be disputed that cancer is increasing at an alarming rate.

With tuberculosis the outlook is brighter, and statistics show that this disease is being fought

with some success. The longevity of the tuberculous patient is increasing, and preventive measures are even more successfully employed.

No effort should be lost in fighting these diseases; no means should be left unemployed in the eradication of either of these maladies from civilization.

So far as cancer is concerned, the work at present is strictly the work of the scientist. The eradication of tuberculosis is now the work and duty of everyone—the medical man, the nurse, the welfare worker, the layman, the municipality. In Illinois, under the Glackin Law, the municipality can do very much indeed in maintaining institutions for the prevention and cure of this disease. Chicago has been the first city to take advantage of this law, and on another page will be found a condensed report, showing what has been done in the building of such an institution. While the publication of this report will be of more local interest to Chicago, it will also help other localities by showing how such institutions may be built and maintained under the present law.

ACTIONS FOR CIVIL MALPRACTICE.

ROBERT J. FOLONIE, L. L. B.,
CHICAGO.

Sixth Article.

It is the duty of a physician undertaking any operation on the human body to secure the consent of the adult patient, if practical, and if impractical because of unconsciousness, mental incapability or similar reasons, to secure the consent of members of the family. In the case of children the consent of a parent must be secured, preferably the father. It is not even sufficient to secure the consent of an elder sister or brother.

An exception to this rule exists in case of an emergency, where the patient is unable to give consent and there is no reasonable opportunity to communicate with the family.

The extent to which the law may go in such cases may be indicated by the unusual case of Drs. S. and B. Both were members of a hospital staff and the former was called to examine a patient brought hastily to the hospital in an ambulance, in an apparently unconscious condition. There was a history of attendance by another physician and an attempted delivery of the pa-

tient of a child. An examination disclosed a breach presentation and the uterus torn almost in two. Dr. B. was immediately called into consultation and excessive hemorrhage indicated that if the patient's life was to be saved, it could only be through an immediate hysterectomy, and minutes were precious. The patient was at once taken to the operating room—the operation successfully performed and the patient lived. Upon convalescence and further inquiry it was found that the patient was a deaf mute, that her husband who was present when the examination was made, was also a deaf mute, which had been discovered at the time through his inability to receive or make intelligible communications of any kind. It was subsequently discovered that neither husband or wife could read, write, or communicate with others, in any intelligible way.

Suit was brought against Drs. S. and B. for operating upon the patient without consent. Claim was made that the patient and her husband were of Jewish religion, that under their creed the barrenness of the wife was a ground of church divorce, that the husband was warranted under the beliefs of their church in deserting his wife and had done so, that by rendering her barren, the defendants had disgraced her in the eyes of her neighbors and friends.

It developed upon the trial that the mother of the patient was present in the ante-room when an attempt was made to communicate with the husband, that the fact of her presence had been incidentally mentioned to the physicians, but no attempt made to communicate with her or secure her consent.

The court instructed the jury that it was the duty of defendants to secure consent of the patient if practical and if impractical, to secure consent of a member of the family and failing so to do, would be liable in damages, no matter how skillful the operation.

Without discussing the mooted question, whether the mother was in law a member of the family, suffice it to say, that the instruction of the court correctly stated the general rule of the law. Instructions tendered for the physicians, that consent need not be secured in an emergency, were refused, on the theory that operation without consent in an emergency was only warranted when no person was present authorized to speak for the patient, and that such was not the case.

It may be greatly doubted whether the rules

of law as given in the case were in fact applicable; whether the case was not an exception to the otherwise proper rule, because of the unusual emergency requiring instant action if it was to be of value. Had the husband been present and been capable of expressing dissent and done so, the physicians would probably not have been warranted in interfering through the implied tender of the patient by bringing her to the hospital, even to save her life. In the absence of such dissent, it would seem unreasonable that the physician should take the burden of determining what ulterior motives may control those more remotely related and not integral part of the family.

The conceded fact in the case cited, that the patient would have died in a few minutes, but for the operation, out-weighed all other questions with the jury, who rendered a verdict in favor of the physicians, despite the court's instructions.

I am frequently asked whether it is advisable to secure written consents. This is largely a matter of judgment, but I am inclined to advise against securing them except where it is a rule of the hospital, and then to permit the hospital to follow its own rule in this respect. The physician in each case, however, should personally secure consent, which need not be done in any formal way and should be sufficiently comprehensive to permit the attendant to use his own judgment in the general field of the operation.

INTERPRETATION OF THE HARRISON ANTINARCOTIC BILL WHICH BE- COMES EFFECTIVE AS A LAW MARCH 1, 1915.

The act which has special relation to the medical profession is Public Law 223 of the sixty-third Congress.

This act in its first section requires registration with the Collector of Internal Revenue, for the district in which he has his office by "every person who produces, imports, manufactures, compounds, deals in, dispenses, sells, distributes, or gives away opium, coca leaves or any compound, manufacture, salt, derivative or preparation thereof."

A tax of \$1.00 per annum is payable at the time of registry and on or before the 1st day

of July and annually thereafter. No employee of such registered person, acting within the scope of his employment is required to register. Officers securing such drugs for municipal hospitals or prisons are exempt from the terms of the act.

This act by its terms requires every physician to register, in default whereof, he will be subject to fine and imprisonment, if the drugs mentioned are at any time in his possession or under his control or prescribed by him.

By the second section of the act, it is provided that no person shall sell, accept or give away said drugs, except on a written order upon a form of blank for that purpose to be issued by the Commissioner of Internal Revenue and every person who gives such order shall make and keep a duplicate for two years, provided that the section shall not apply to the dispensing of the drugs to a patient by a physician registered under the act in the course of his professional practice only. Provided, however, that the physician shall keep a record of all such drugs dispensed or distributed, showing the amount, date and name and address of the patient, except such as may be dispensed or distributed to a patient upon whom the physician shall personally attend. This record is also required to be kept for two years.

The effect of section 2, with this limitation, must be considered in connection with section 8, which provides that it shall be unlawful for an unregistered person to have such drugs in his possession, with the exception that this shall not apply to an employee of a registered person or a nurse under the physician's supervision having such possession or control, by virtue of his employment or occupation and not on his own account,—and that the possession shall not be unlawful if the person has the drug which has been prescribed by a registered physician.

Further exception is made to section 2, that it is not unlawful to sell, dispense or distribute such drugs, by a dealer to a consumer on written prescription of a registered physician. Provided, however, that the prescription shall be dated as of the date on which signed and shall be signed by the physician who issued the same.

This section as a whole prohibits an unregistered physician from having the drugs in question in his possession, therefore, of course, prohibits him from using them or prescribing them.

A registered physician may have such drugs in his possession. If he personally gives them to a patient he need make no record of it. A registered physician directing the administration of such drugs by a nurse, unregistered interne, etc., should, to comply with this act, supply himself with appropriate blanks to put such directions in writing, providing such pad with a carbon sheet, so that a carbon copy of the directions may be torn out and delivered to the interne or nurse, the original being retained. If care is used to place the name of the patient and address of the patient, dates and amounts administered and kept for two years, it will doubtless serve the purpose of the law.

I do not find that the act expressly requires such record to be kept by the physician in his own handwriting. Arrangements can doubtless be made for the keeping of a separate morphine record in conjunction with a bedside record; care being used to see that this record comes into the possession of the physician in each case when the patient is discharged.

The physician should check each of these records while they are in the making, so that he may of his own knowledge thereafter know that they are correct.

The act in section 6 provides that provisions of the act shall not apply to any sale, dispensing or giving away or possession of preparations and remedies which do not contain more than two grains of opium or more than one-fourth of a grain of morphine or more than one-eighth of a grain of heroin or more than one grain of codein, or any salt or derivative of any of them in one fluid ounce, or if a solid or semi-solid preparation, in one avoirdupois ounce, or for liniments, etc., for external use only (except those which contain cocain or any of its salts, or alpha or beta eucaine or any of their salts or synthetic substitutes—provided such remedies are not sold or given away for the purpose of evading the intentions and provisions of the act.

The act authorizes the Collector of the District to demand of any registered person a correct statement verified by affidavit stating the quantity of said drugs received by him during three preceding months, the names of persons from whom purchased and the quantity in each instance received from each of said persons, and the dates.

I believe that it is of importance that the profession be informed of this act so that they may govern themselves accordingly, and any member of the profession desiring copies of the act can secure them through their Congressman by asking for a copy of "Opium and Narcotic Laws."

ROBERT J. FOLONIE.

CIVIL SERVICE EXAMINATION

The Cook County Civil Service Commission will hold the following examinations at 547 County Court House at the time and place indicated below. Applications must be made on blank forms, which will be sent on request, and filed with the Commission before noon of the day preceding the examination.

Resident Physician—Psychopathic Hospital (510)—Male and female—Class A, Rank 3, Grade 2—Pay: \$75.00 month and maintenance. To be held 2 p. m., February 24, 1915.

The resident physician at the Detention Hospital is required to live at the institution, and is held responsible for the medical treatment of the inmates and the enforcement of the rules of the institution under the supervision of the county physician. He has full charge of the institution during the absence of the county physician.

The nature of the position makes academic and medical school education, service as an intern, experience in the treatment of nervous and mental diseases and hospital work valuable.

The scope of the examination will be: Special subject, weight 5; experience, weight 3; practical test, weight 2.

The new Psychopathic Hospital is entirely modern as to equipment, laboratories, etc., and an excellent opportunity is afforded resident physicians to get valuable experience in the treatment of nervous and mental diseases.

A. M. A. CONVENTION

Do not forget to make sufficient reservations to meet your requirements for the 1915 A. M. A. convention and exposition at San Francisco. Special train from Chicago superintended by the Gregory tour for physicians of Illinois, their families and friends.

Dr. R. R. Ferguson, Chairman,
Transportation Committee,
Chicago Medical Society,
Marshall Field Annex building, Chicago.

DEAR DOCTOR: Please reserve accommodations for persons for the 1915 A. M. A. Convention and Exposition Tour.

I enclose herewith check for \$....., being my first payment of ten dollars (\$10.00) on each reser-

vation. Second payment of ten dollars (\$10.00) will be due in thirty days.

Reservations may be transferred any time ten days prior to date of departure.

Yours very truly,

(Signed)

(City)

(Address)

ASSOCIATION OF THE MEDICAL RESERVE CORPS.

U. S. ARMY, NEW YORK STATE DIVISION.

NEW YORK, January 7, 1915.

To the Editor:

The Gorgas medal to be given yearly in honor of Surgeon-General Gorgas has been established by the Medical Reserve Corps Association, New York State Division. This medal is open to competition to mem-

bers of the Medical Corps of the United States Army, the Medical Reserve Corps of the United States Army, and to members of the Medical Corps of the organized militia. Officers may submit papers on any subject of a medico-military nature.

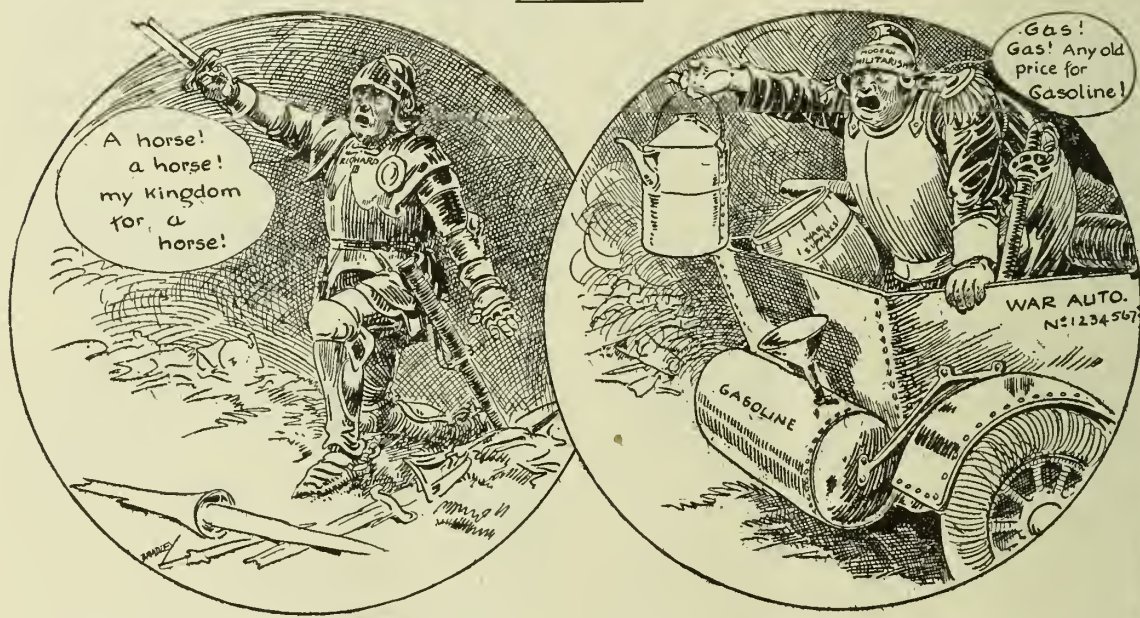
General Gorgas has appointed the following board of officers to act upon papers submitted: Colonel Charles Richard, Lieut. Col. Champe C. McCulloch, Jr., and Major Eugene R. Whitmore, Army Medical Corps. These officers are members of the faculty of the Army Medical School and will have sole authority to appoint the time that papers are to be submitted, and to pass upon the merits of the papers.

All inquiries should be addressed to one of these officers.

Very truly yours,

LIEUT. HAROLD HAYS, M. R. C., U. S. A.,
Secy. N. Y. State Division, M. R. C., U. S. A.
Other journals please copy.—J. P. M.

SHAKESPEARE REVISED.



—Courtesy of the Chicago Daily News.

Auto Sparks and Kicks

INTERLINERS IN NEW TIRES.

Extensive experience of actual users goes to show that interliners in any tire, new or old, are a positive advantage worth while. They render nail punctures fifty per cent less, decrease acute flexing of tire sidewalls, quite largely obviate "stone bruises," and give a better proportion between casing and inner tube than is offered by common sizes as now sold. As a result of a series of experiments I have found that an "over-size" casing with a good interliner well cemented in, will give over twice the service that the common pneumatic tire of intended size will offer in use on common roads.

EQUAL-SIZED TIRES ON FORD CARS.

Two Ford cars may be so changed that both can have three-and-one-half-inch tires all around without extra expense, except the excess of tire size. Remove the wheels without hubs from the front of one car and the rear of the other. Place thirty by three rims all around on one car, and thirty by three-and-one-half on the other. Put thirty-one by three-and-one-half tires on the car with the three-inch rims, and thirty by three-and-one-half tires on the other car. This gives equal-sized tires all around, and extra size.

CHANGING GEARS.

That clashing of gears that sounds so terrible may be avoided almost altogether if the change of gear is made with a sudden movement instead of slow pressure.

RAILWAY CROSSING.

Test observations have shown that only about four per cent of all automobiles crossing railway tracks use proper safeguards against accidents. The tendency of the car to slow up, the likelihood of the motor going dead, and lack of presence of mind, call for a very high degree of care. A driver who does not STOP—LOOK—and LISTEN before trying to cross a track should be fined for criminal carelessness.

It might also be well to call attention to the fact that when two persons are in the car and a track is crossed, as often happens, not at right

angle but tangentially, the person not driving should look back on the track, while the driver scans the rails ahead.

KEEPING VARNISH BRIGHT.

The varnish on a new car, or a car newly painted, is liable to become speckled if it is rained on. The application of a mixture of equal parts of raw linseed oil and malt vinegar, if vigorously rubbed in, will render the marks less noticeable.—*Exchange*.

TO REMOVE GREASE FROM HANDS.

To those who object to the old method of thoroughly greasing their hands in order to make subsequent cleaning easy after an overhauling job it is recommended that a solution composed of four parts of alcohol, three parts of glycerin and three parts of water be used instead. This should be well rubbed in and the hands permitted to dry before work is commenced.—*Exchange*.

THE FORCE OF IMPACT.

When an automobile is running at the rate of fifty miles per hour a sudden stoppage is equivalent to the impact of a body that has fallen one hundred and twenty feet. When running at fifteen miles speed the impact is only equal to a fall of thirteen feet.

A TEST TO LOCATE TROUBLE.

When the motor starts hard, and you are uncertain whether the fault is with the ignition or the mixture, open the throttle wide and spin the engine with spark off, then turn on the spark and the engine should start, if the spark is correct, on the first half turn.

DO NOT PAY FOR A DOG.

When you run over a dog, and he is left so flat that you are almost tempted to go back and pump him up with your tire pump, don't do it. Do not even go back to pay for the damage. Chickens and dogs have no rights on the road.

OIL FOULED.

Spark plugs that are oil fouled may be cleaned easily by boiling them in washing soda solution.

This Page Reserved for Permanent State Meeting Announcements

The following schools of medicine will have Alumni Reunions, either at luncheon or dinner, at the next meeting of the Illinois State Medical Society, to be held at Springfield on May 18, 19, and 20, 1915:

- (1) BarnesSt. Louis
- (2) NationalSt. Louis
- (3) Washington UniversitySt. Louis
- (4) RushChicago
- (5) NorthwesternChicago
- (6) P. and S.....Chicago
- (7) Coll. M. & S.....Chicago
- (8) MichiganAnn Arbor
- (9) Univ. PennsylvaniaPhiladelphia
- (10) General..Alumni of all other schools not in the above list

Alumni of the above schools will receive shortly a letter of explanation from the Chairman of his Committee giving full details as to place and time. Suggestions for a speaker will be gratefully received.

Early reservations for rooms are requested, as it is possible the legislature will be in session. The Committee on Reservations will attend to your wants promptly.

All communications should be addressed to H. C. Blankmeyer, M. D., Chairman Committee on Arrangements, Springfield.

Society Proceedings

ADAMS COUNTY.

The first meeting of the new year, Jan. 16, 1915, was conspicuous for attendance, enthusiasm and scientific program.

At 9 o'clock the members gathered at Blessing Hospital, where a clinic was held by Dr. John L. Porter of Chicago, specialist in orthopedic surgery and an honorary member of the society. Thirty cases were examined at the hospital and consisted of Potts' disease, tubercular hip, torticollis, genu valgum and varum, plastic palsy, anterior poliomyelitis, etc. At 2 o'clock only about three-fourths of the patients had been seen, so the hospital kindly consented to provide the remainder with refreshments, and we adjourned to the Hotel Newcomb for dinner.

When the appetites were appeased the president called the meeting to order and in a few well chosen words introduced Dr. Porter to his friends and admirers. The doctor informed us what a pleasure it was to be with us again after an absence of three years and then presented a very practical and important paper on "Painful Affections of the Feet." He described various kinds of feet: (a) weak feet, (b) flat foot, (c) rigid foot, (d) gonorrheal, (e) metatarsalgia, and gave the treatment of each. A plaster of Paris model, one of the doctor's recent cases of flatfoot, was passed among those present, as well as various styles of steel foot plates, which the speaker stated were being used less and less each year.

Following the discussion of this excellent paper a short business session was held, during which a rising vote of thanks was extended to Dr. Porter and an invitation to visit the society again in the very near future.

After a number of private consultations the doctor returned to the hospital to finish the clinic.

At the conclusion of an extremely strenuous day Dr. Porter was escorted to the hotel, where a number of members were awaiting him, and all sat down to an elaborate five-course dinner.

Besides Dr. Porter the following were guests of the society on this occasion. Drs. Stremmel, Hermeteb and Hartman, Macomb; Dr. Dorsey, Jr., Keokuk, and the nurses of Blessing Hospital.

ELIZABETH B. BALL, M. D.,
Secretary.

COLES COUNTY.

The Coles County Medical Society met at the Charleston Hotel, Charleston, Jan. 5, 1915. The following officers were elected: President, Dr. J. G. Baker, Mattoon; vice-president, Dr. M. W. Bisson, Charleston; secretary-treasurer, Dr. Gertrude Transeau, Charleston; censor, Dr. J. T. Montgomery, Charleston; delegate to the state meeting, Dr. C. E. Morgan, Humboldt; alternate, Dr. T. O. Freeman, Mattoon.

A banquet followed the business meeting. After the banquet the president, Dr. G. B. Dudley, on behalf of the society, presented Dr. J. T. Montgomery with a written testimonial, signed by all the members, in recognition of his services to the society, to the profession and to the community. The doctor was taken entirely by surprise. After a few minutes he recovered himself and responded with a fine speech of appreciation. Dr. T. O. Freeman and Dr. F. E. Bell then spoke of the doctor as a physician and man. Dr. Buchanan of Paris gave a humorous talk on Dr. Montgomery's fads. Dr. Allen of Arcola then spoke. Dr. Steven Young of Terre Haute, who was unable to be present, sent a letter of greeting. Dr. Wylie of Paxton, who had hoped to be present, sent a long letter full of reminiscence and admiration for the doctor. Drs. Epperson and Moody of Kansas were present. After the meeting an hour was spent in reminiscences.

We believe that the society is getting somewhere when all of its members can get together and honor a fellow member while he is living and an active competitor.

GERTRUDE TRANSEAU,
Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, January 6, 1915.

1. "War from the Standpoint of the Military Surgeon," Col. Wm. Stephenson, M. C., United States Army, Chief Surgeon, Central Division.

2. "Smallpox and Vaccination," T. W. Raison, P. A., Surgeon United States Navy.

3. "The Medical Service in War with Special Reference to the United States Land Forces," Capt. G. M. Blech, M. C., I. N. G.

Joint Meeting Between the Chicago Medical and

Chicago Urological Societies, January 13, 1915.

1. Fulguration Treatment of Bladder Tumors—Herman H. Kretschmer. Discussion—L. E. Schmidt.

2. Progress in Genito-Urinary Surgery—Gustav Kolisher.

3. What Surgery Offers in Kidney Lesions—Arthur Dean Bevan.

Regular Meeting, January 20, 1915.

1. Uterine Inertia and Its Management. Irving H. Eddy. Discussion—C. B. Reed, C. S. Bacon.

2. Resection of the Posterior Roots of the Spinal Cord for the Cure of Little's Disease.—M. E. Bland, Cleveland, O. Discussion—Carl Beck.

3. Traumatic Hernia and Its Relation to the Workman's Compensation Act.—R. Robinson Duff. Discussion—R. W. Forrester, C. W. Hopkins.

Englewood Branch.

The January meeting of the Englewood Branch was held on Tuesday evening, Jan. 5, at the Englewood Hospital. President Dr. Joseph Sherlaw presided and the following program was presented:

PROGRAM.

1. Medical Treatment of Hyper Thyroidism.—F. S. Tufts.
2. Surgical Treatment of Hypo-Thyroidism.—John B. Haeberlin.
3. Treatment of Hypo-Thyroidism.—Harry G. Hardt.

The papers were very well written and the subject thoroughly covered.

The discussion was opened by Dr. Dean D. Lewis, who complimented the essayists on their thorough and painstaking work. He stated that as far as the treatment of hyper-thyroidism was concerned that we were not much further along than we were twenty years ago with the exception that the surgical treatment was more clearly defined. Surgical treatment for exophthalmic goitre he believed wrong, but that it was the best treatment we had and that the only thing to do is to operate. He believes that all cases showing tachycardia should be operated on and that we should not wait until the case becomes extreme. As to methods, he excludes Porter's operation. Polar ligation, he believes, has its place but that extirpation is the best. He called attention to the relation of the thymus gland in these cases, stating that most of the fatal cases, those dying on the table, showed, on post mortem examination, an enlarged thymus.

Dr. Carl Langer stated that surgical treatment was the best thing we know now, but believed that something better would come. That surgical measures gave, at best, improvement in 80 per cent of the cases and failure in 20.

Others who entered the discussion were Drs. L. J. Osgood, E. B. Fowler, C. Hubart Lovewell, Julius H. Hess and J. J. Moorhead.

Dr. J. J. Moorhead showed an interesting case of hiccough in a woman 51 years old. It came one week after her last menstruation, which was in June, 1913. She was free while in bed but afflicted during entire day. The attendance was 94.

ARTHUR G. BOSLER,
Secretary.

COOK COUNTY

CHICAGO OPHTHALMOLOGICAL
SOCIETY.

A regular meeting was held November 16, 1914, with the president, Dr. Wesley Hamilton Peck, in the chair.

THE INTRACAPSULAR CATARACT
OPERATION.

Dr. William A. Fisher reported and exhibited ten cases on which he had performed this operation. At this time when the intracapsular operation was rapidly supplanting the old method in nearly all sections of India, it might be of interest to the profession to know exactly what could be expected from the operation. Most of the objections that had been made by the profession could be eliminated by proper attention to the Smith

technic, would could be mastered by good operators before an intracapsular operation was attempted according to the method the speaker recommended to this society last March and published in *Ophthalmology*, April, 1914.

The ten patients with twelve operations he presented to the society were not selected cases, but ten consecutive operations and with them were two juveniles, operated upon May 16, 1914. All had been operated upon recently and none of them longer than three months ago except the double one. He presented the two juveniles on one patient operated on May 16 because it was unusual in America to operate on both eyes at the same time. Juvenile cataracts were not choice cases for the intracapsular operation and his needle was used more often in those cases than in senile cataracts. The younger the subject the more difficult it was to rupture the zonula, hence the frequent use of his needle in aiding the delivery of the lens. No less of vitreous occurred in any of the cases when the needle was used. To present twelve operations, one-half of them being juvenile, seemed to him a severe test for the intracapsular operation. In one of the twelve operations, slight inflammation followed, probably caused by prolapse of the iris, but the patient was discharged with a vision of 20/30. This was the only case that had had any pain or received any after-treatment. Any operation that would remove the cataract and not be followed by inflammation would usually give good results and if the capsule was removed with the lens without loss of vitreous, postoperative inflammation would be rare. If an operator could successfully remove the lens in its capsule, the intracapsular operation would give the best average vision. Twelve operations, even though they be consecutive, were not numerous enough to form a definite conclusion, but it was a large number to get together at any given meeting in this city.

In all of these twelve cases the bandage was not removed from either eye until the ninth day, and slight inflammation followed only one, and that was the one with a prolapsed iris. He felt quite confident of a good result when he removed the lens in its capsule, because then he considered it useless or even meddlesome to remove the bandage from both eyes for nine days unless the patient complained. If the patient did not complain for nine days, one might assume all was well, and when the first dressing was removed, the only treatment necessary was dark glasses.

To do justice to Colonel Smith and his operation, he wanted to emphasize two of the so-called objections so often brought forward by good operators who had not adopted his method. First: the absence of drawn-up pupils, especially those that interfered with vision; second: the absence of astigmatism from the corneal section which had been made in all of those where only one out of the twelve had any astigmatism. He felt sure he never operated on twelve consecutive cases by the

old method without having some complications more serious than had occurred in these twelve, and he was sure he could never have obtained such good vision as had been obtained in this series by any other method than the intracapsular.

Before he reported the results of those twelve operations he wished to emphasize the importance of the Smith technic in any method of removing the lens. This could be mastered by good operators by adhering strictly to it in doing the old operation with the exception of cutting the capsule. If good operators would master the Smith technic in the old operation they would soon find themselves doing many intracapsular operations.

DISCUSSION.

Dr. Oliver C. Tydings had examined several of the cases exhibited by Dr. Fisher and could confirm what Dr. Fisher had said with reference to visual acuity. He did not think any member of the society, who had been doing cataract extraction for any length of time, had ever operated on so many consecutive cases with so little astigmatism as was shown in these cases. Absolute freedom from inflammatory conditions should commend this operation to the attention of the public. He believed sooner or later this operation would supersede all other operative efforts for the relief of cataract.

Dr. Charles H. Francis asked Dr. Fisher if in these cases he bandaged both eyes for nine days.

Dr. Harry S. Gradle said it was his good fortune to go over forty-five cases of Smith extraction with Professor Elschnig in the eye clinic at Prague and he compared these with three hundred cases of extraction within the capsule, and there was no greater astigmatism following the Smith operation than that following the capsulotomy method. Smith operated on both eyes at once.

Dr. Willis O. Nance asked Dr. Fisher if he considered it absolutely essential to the success of the operation to keep the eye bandaged for nine days. Personally, he felt such a procedure was not good surgery. In one case in which the bandage was left on for seven or eight days the cornea was found to be quite necrotic. Panophthalmitis had resulted and since that time, in every operative case, he had examined the eye at the end of the first forty-eight hours. There were three objections to the operation described. The first was the position of the corneal incision, it being much more in the cornea than the one employed when one expected to make a large conjunctival flap. Second, the possible loss of vitreous. Third, bandaging the eye for nine days without opening the bandage to see what condition the eye was in.

Dr. Fisher, in closing, said there was not one of the twelve patients exhibited who had experienced the slightest trouble on account of the bandage being left on for nine days, and the patients were here to speak for themselves. When the bandage was taken off there was no after treatment except in one which had a prolapsed iris.

(To be continued.)

EDGAR COUNTY.

The Edgar County Medical Society met in regular session in the lecture room of the Carnegie Library, Paris, Illinois, January 6, 1915. Members present: Drs. Clinton, Williams, E. O. Laughlin, Dugan, McCord, Shipman, Halloren, Hazen and Hunt. In the absence of the president, Dr. Bertha L. Clinton acted as president pro tem.

A resolution to amend the by-laws to change the date of the annual meeting of the society from the month of April to the month of January was introduced and passed its first reading.

The program committee was instructed to arrange

for a public meeting for the purpose of a discussion of the subject of "Tuberculosis," the meeting to be held some time during the month of January, 1915.

Drs. Hazen, Laughlin and Williams were appointed a committee to investigate the amount of the annual dues necessary to conduct the society through 1916 and report upon the same at the next meeting of the society.

The regular program was next taken up and Dr. F. E. Shipman presented a very thoughtful paper upon the "Medical Treatment of Lobar Pneumonia." The essayist prefaced his treatment by a brief resume of the conditions to be met in the course of the disease, and said that while no routine treatment could meet all these conditions yet their severity and the ensuing results could be very much modified by the judicious adoption of certain recognized principles. The essayist called attention to the fact that in pneumonia it is not the pathology, but the morbid physiology which caused death. He sketched in detail the condition of the heart, blood vessels and nerves. The heart symptoms were the most important and the writer advocated the guarding and strengthening of this organ from the beginning; digitalis being his main reliance, and his object being to secure a strong digitalis heart when the danger period arrived. The drug of next positive value was camphor, in the form of 10 per cent. solution in oil, 5 c.c. administered hypodermically 3 to 5 times per day. The doctor spoke highly of this remedy and cited very convincing statistics regarding its beneficial effect. The combating of toxemia by activity of skin and kidneys was insisted upon and saline infusions recommended to attain this end. A review of the different drugs, inhalations and stimulants was then given. And the paper closed with the warning that procrastination has no part in the treatment of pneumonia as the patient in ten days was dead and buried or alive and well. The paper was very fully discussed and favorably received.

Dr. Wm. Halloran presented a paper on "Croup," in which he urged the danger of a mistake in diagnosing the membranous from the spasmodic variety. The membranous form was so rapid in development and so fatal in outcome that if it was suspected, large doses of antitoxin should at once be administered. And if the symptoms then progressed, intubation employed. The remedies and adjuvant treatment for the spasmodic variety were set forth, and the care of the patient during convalescence from the membranous form outlined. This paper was also fully discussed, and the value of intubation fully set forth by those who had employed it, the consensus of opinion being that its value was not properly recognized and that those who had been repeatedly disappointed in its results had employed it far too late. Employed at the proper time it was one of the most useful of surgical operations.

Society adjourned to meet January 27, 1915.

GEORGE H. HUNT,
Secretary.

EFFINGHAM COUNTY.

The annual meeting of the Effingham County Medical Society was held December 8, 1914. The following officers were elected: Dr. J. C. R. Wettstein, president; C. F. Cunningham, D. D. S., first vice-president; Dr. S. F. Henry, secretary.

The following papers were given which were all well discussed:

1. "Displacement of Uterus," Dr. Haumesser.
2. "Oral Sepsis as the Cause of Systemic Disorders," T. C. Cunningham, D. D. S.
3. "X-Ray as Aid in Gastro-Intestinal Diagnosis," W. E. Lawrence.
4. "Some Things to Do in a Confinement Case," S. F. Henry, M. D.

S. F. HENRY,
Secretary.

HANCOCK COUNTY.

The regular quarterly meeting of the Hancock County Medical Society was held in the memorial room of the court house, Carthage, Illinois, January 4. Physicians in attendance were Drs. Holmes, Stremmel and Hartman, of McComb; Dr. Irwin, of Plymouth; Dr. Kelly, of Ferris; D. Bouseman, of Ft. Green; Drs. Edwards, Gaunt and Loomis, of Warsaw, and Drs. Jenkins, Frazier, Blender and Parr, of Carthage.

The first number on the program, a violin solo by Mrs. Percy Culkin, Miss Edith Lionberger accompanist, was much enjoyed. Two excellent papers were presented, one by Dr. Holmes, of Macomb, on "The Relation of the Surgeon to the General Practitioner." Another by Dr. Jenkins, of Carthage, on "Some Ailments of the Profession." Both papers brought out interesting discussions. A number of interesting cases were reported and discussed by those present.

S. M. PARR,
Secretary.

JACKSON COUNTY.

The December meeting of the Jackson County Medical Society was held in the Jackson Club Rooms, Murphysboro, Illinois, December 17, 1914. The following members were present: Drs. Carter, Daniel, Horstman, Roth, Molz, Hrabik, Sabine, Essick, Ormsby, Riseling and Wayman, of Murphysboro; Drs. Whitacre, Brandon, Lewis, Barrow, Mitchell and Thompson, of Carbondale; Dr. J. R. Tweedy, of Vergennes; Dr. W. W. House, of Oraville; Dr. John Bennett, of Ava. Visitor, Dr. A. C. Ragsdale, of Carbondale.

A motion by Dr. Molz, seconded by Dr. Sabine, that the dues be \$3.00 for the ensuing year. Carried. A motion by Dr. Carter, seconded by Dr. Daniel, to change the meetings from monthly to quarterly. Carried.

As this was the last meeting of the year, the election of officers followed. Dr. O. W. Whitacre, of Carbondale, was elected president; Dr. H. M. Daniel,

vice-president; Dr. L. R. Wayman, secretary-treasurer. Dr. J. R. Tweedy, of Vergennes, was elected member of the Board of Censors.

A paper was read by Dr. H. C. Mitchell on "Supra Pubic Prostatectomy." Discussion by Ormsby and Riseling, of Murphysboro. Another by W. A. Brandon, of Carbondale, on "Pneumonia." As this is a condition all are called upon to treat the discussion was general. So-So stories were presented by Dr. H. G. Horstman, of Murphysboro, and many of the physicians present told some of their amusing experiences in the sick room. Adjourned.

A banquet was held at the Logan House at 6:30, which was closed by talks from some of the members for the good of the society. The next meeting will be held in Murphysboro, March 18, 1915.

LOUIS R. WAYMAN,
Secretary-treasurer.

MADISON COUNTY.

The Madison County Medical Society held its regular monthly meeting on January 4, 1915, at the Commercial Club rooms in Edwardsville. It was a very interesting session.

Members present: Drs. Luster, Ferguson, Wedig, Scott (R. B.), Johnson, Kerchner, Schreifels, Scott (J. W.), Sutter, Smith (W. H. C.), Hamm, Barnsback, Wahl, Gillis, Wharff, Range, Robinson, Oliver, Hastings, Kiser, Hirsch, Burroughs, and E. W. Fiegenbaum. Visitors: Dr. J. A. Warner, of St. Louis, and Rev. Jas. R. Sager, pastor of the First Presbyterian church in Edwardsville.

Dr. E. C. Ferguson, of Edwardsville, presented notes and observations taken at the Harris clinic, conducted at the St. Francis Hospital in Litchfield, some time ago, when the nerve-blocking system was shown. Dr. Ferguson told of the five successful operations done there on that day and graphically described every detail of this method of local anesthesia. Everything was to the point and all details were made clear.

The second speaker of the day was Dr. J. A. Warner, of St. Louis, who had a paper on "Serum Therapy." He was assisted in the lecture by illustrations with fifty or more slides, showing the manufacture of the serum. The stereopticon was operated by Rev. Sager. Dr. Warner's talk was very instructive and was much enjoyed by his hearers. A vote of thanks was tendered to both of our speakers and also to Rev. Sager for his efficient assistance.

The application for membership of Dr. J. P. Hale, of Alton, was received and will be acted upon at the next regular meeting, to be held in Venice, on Friday, February 5.

Several good speakers have been secured for this meeting. Dr. H. Roberts, of Belleville, will talk on "Radium." Dr. George W. Cale, Jr., of St. Louis, chief surgeon for the Frisco lines, will speak on "Fractures."

E. W. FIEGENBAUM,
Secretary.

PERRY COUNTY.

The following officers were elected by the Perry County Medical Society for 1915: Dr. A. W. Daggett, Belleville, president; Drs. M. Adles, Wolf, Templeton, Cleland and Kellar, vice-president; Dr. J. D. Byrne, secretary-treasurer; Dr. M. Adles, delegate to state convention; Dr. C. M. Brookings, alternate; Dr. R. D. Pope, as the society's representative to plan ways and means for a county hospital.

R. D. POPE.

ST. CLAIR COUNTY.

The annual meeting of the St. Clair County Medical Society took place on Thursday, January 7, 1915, at Belleville, Illinois, with President August Bechtold in the chair and the following members present: Drs. Bechtold, Hansing, Auten, R. L. Campbell, Lillie, Randleman, Raab, Duey, Dew, Trippel, Kunze, Bottom, Reuss, Roberts, Thompson, Hagarty, Wyatt, Renner, Miller, Otrich, Fulgham, Rayhill, Lane, Cleve-land, Hilgard and Portuondo.

The treasurer's report showed a balance of \$11.19, which the Board of Censors reported to be correct. The president made a verbal report of the progress of the society during the year.

The scientific program consisted of two very scholarly, able and interesting papers, one by Dr. E. P. Raab on "Pathology and Diagnosis of Mitral Lesions," and the other by Dr. C. W. Lillie on "General Treatment of Heart Lesions." Both papers were listened to with great interest by all members present and they covered the ground very thoroughly.

It was moved and seconded that a special meeting be held in East St. Louis during the month of February and that the president of the state society be invited to attend. Motion carried.

The following officers were elected by acclamation: R. L. Campbell, president; D. R. Duey, vice-president; A. Hansing, treasurer; B. H. Portuondo, secretary; E. P. Raab, T. Hagarty and W. E. Wyatt, board of censors; Dr. A. Bechtold, delegate, and C. P. Renner, alternate.

Dr. Campbell was escorted to the chair and in a few well-chosen words thanked the society for the honor conferred upon him. The application of Dr. Etherington was referred to the board of censors and they reported that they would prefer not to pass upon this application.

The society adjourned to meet again in February.

B. H. PORTUONDO,
Secretary.

STEPHENSON COUNTY.

The Stephenson County Medical Society held its annual meeting at the court house, Freeport, Jan. 22, 1915. The meeting was called to order by President Synder at 1:30 p. m. Dr. T. J. Holke read a paper on "Some Observations on the Vienna Clinics." It is the doctor's opinion that owing to the present war the clinic will be wholly disrupted and that it will take

years to again get it running in the clock-like fashion that was obtained by the American Medical Association of Vienna.

The election of officers for the ensuing year resulted as follows: President, Dr. William L. Karcher; vice-president, Dr. W. B. Peck; treasurer, Dr. Nelson C. Phillips; secretary, Dr. J. Sheldon Clark; censor, Dr. W. T. Collins; delegates to the state meeting at Springfield, Dr. Cuthbert J. Leavy; alternate, Dr. James A. Poling.

Dr. Charles S. Bacon, professor of obstetrics of the College of Physicians and Surgeons of the University of Illinois, then read his paper on "Artificial Amnesia or Twilight Sleep in Labor."

Dr. Bacon said: The method has been tried in past years by various men with many failures. He said labor was markedly delayed and that some 28 to 40 per cent of the babies were deeply cyanosed when born. The doctor gave a detailed description of the drugs used and a minute description of the technic of employment. He described a standardized method now being worked out in Freiburg, Germany, and said this could not be but dangerous in many cases. He believed "dammerschlaf" unnecessary in a large majority of cases.

Dr. Bacon doubted somewhat the validity of many published reports from Germany. Warning was given never to attempt this treatment in the home, a well equipped hospital being the only place where it should be undertaken, no one should ever attempt this treatment without being fully acquainted with the drugs, the symptoms they produce and the dangers connected with them.

Dr. Bacon's address was well received and soundly cheered by the audience of some fifty physicians. A standing vote of thanks was voted and tendered Dr. Bacon by the Stephenson County Medical Society.

A contrary view of the subject was taken by Dr. N. R. Harlan, who quoted Dr. W. H. W. Knipe of New York in the December 5th issue of the *Medical Record*: "At Freiburg and elsewhere in Germany, by men who have been trained in Freiburg, there have been reported 8,000 cases of 'twilight sleep' with very excellent results, both for the mother and for the child; and it would seem that with similar technique and care, equally good results may be obtained in this country by those who follow the Gauss method." Eight thousand is a good many. Dr. Bacon says he himself has used the method in only two or three cases. Adolph Lobell reports 100 successful cases, A. J. Rongy 220 successful cases, Ratneff 200, while John A. Polak and W. H. W. Knipe have each had scores of cases, and report most excellent results. Permit me to read to you from page 887 of the December *American Journal of Obstetrics*: "These secondary effects of the drugs in no way hinder the progress of labor, nor do they put the life of the mother or the child in danger and to counter-balance them we save the patient the exhaustion incident to painful labor."

So there you are; Dr. Bacon tells us his idea is that the method is not good, yet these men just mentioned praise the method after they have observed its operation in thousands of cases; they tell what experience has taught them to be the truth.

In a dilemma like this, where one authority says one thing about a treatment and another says just the opposite there is one way to settle the matter yourself and that is to go where the treatment is administered and find out for yourself. This we did. We found neither mothers nor babies suffered any ill effects and that the mothers were delighted with it.

Ten years ago gas was discarded as unfit for surgical anesthesia. Today with perfected technique, gas can be used in any surgical operation. Yet this is the same gas used 10 years ago. "Twilight sleep" treatment was attempted years ago and failed but like gas, with new methods of administration, it is now a success.

Of course the treatment is dangerous in the hands of a physician not familiar with its application. The administration of any drug is dangerous in the hands of one ignorant of its proper use. But the giving of "twilight sleep" treatment by one skilled in the method is perfectly safe; the mothers are in no way injured, the babies are perfectly normal and not in the least harmed by it. Upwards of ten thousand happy, satisfied mothers today will bear out this statement and ten thousand healthy babies offer living testimony.

Dr. K. F. Snyder, outgoing president of the Stephenson County Medical Society, said his object in asking Dr. Bacon to come to Freeport to talk on the subject was to learn the truth from authority. He thought the authorities should decide the matter.

Dr. J. H. Stealy reported a case, a very nervous case, recently successfully delivered under twilight treatment at the Freeport General hospital, although her one previous labor had been to her a most disastrous and horror inspiring affair. Dr. Stealy said 30 grains of scopolamin had been administered to a dog without especially ill results and that the dose used in twilight method was only 1-150 to 1-400 of a grain.

Dr. J. S. Clark suggested the use of small doses of apomorphine to allay the nervousness.

Following the meeting the doctors gathered for dinner at the Angelos cafe and were served with an elaborate menu.

The following physicians were present at the meeting: Drs. A. E. Smith, D. G. Smith, Snyder, Karcher, Harlan, Stealy, Hewetson, Burns, Leavy, Peck, Phillips, E. H. Best, C. L. Best, Collins, Stober, B. Erp-Brockhausen, Hutchins, Linda K. Hutchins, M. L. Rosenstiel, Rideout, Arnold, Pettipiece, Diestlemeier, Stiver, Sikes, White, Poling, Holke, Mease, Clark, Downing of Warren, Kellar of Warren, Kreider of Lena, Lins of Durand, Johnson of Dakota, Walton of Rock Grove, May of Shannon, Miller of German Valley and Professor Bacon of Chicago.

A number of the nurses of the city were in-attend-

ance and also undergraduates from the Globe and Freeport General hospitals.—J. Sheldon Clark, secretary.

VERMILION COUNTY.

The Vermilion County Medical Society met in the City Council Chamber, Danville, January 11, 1915, with twenty-seven members present. Minutes of December 14 were read and approved. A lengthy discussion followed in regard to Dr. Mabel Blake-Phelps and other alleged illegal practitioners. Various means were discussed for getting these before the proper legal authorities. By motion, the secretary was instructed to correspond with the State Board of Health as to where we stand on such subjects and the proper mode of attack to rid the county of these pests. In the meantime it was suggested that each member be on the lookout for definite evidence against these practitioners.

The program of the evening consisted of papers on "Joint Fractures," by Drs. Hole and Steeley. Both papers were well written and a very lively and interesting discussion followed by Drs. Glidden, F. N. Cloyd, R. A. Cloyd, Dixon, Guy, Baumgart and Williams.

On motion the officers were empowered to expend money as they see fit for the entertainment of the society.

O. H. CRIST,
Secretary.

WARREN COUNTY.

The regular meeting of the Warren County Medical Society was held at the Monmouth Commercial Club, on Friday, November 6, 1914. The meeting was called to order by the president, Dr. P. B. Conant, of Roseville. The minutes of the last meeting were read by the secretary, Dr. H. M. Camp, and the secretary's report was read, both of which were approved by the society. An extra meeting to be held each year, making them quarterly, instead of semi-annual, was voted, the extra meeting to come in June. Dr. Charles Patton Blair, of Monmouth, was unanimously elected to membership. Dr. Arthur K. Drake, of Monmouth, but formerly of Macomb, transferred his membership from the McDonough county society to Warren county.

The first speaker on the program was Dr. P. B. Conant, who talked on "Infantile Paralysis." The reason this subject was selected was the fact that Dr. Conant had had two cases appear at the same time, about twenty miles apart, and without any exposure to the disease. One of the cases was a little school girl, who first noticed the paralysis while at school; the teacher had asked her a question, and noticing something wrong, went to her side, and found she was entirely unable to move her hand. She was sent home at once, and the doctor made the diagnosis soon after. In this case, there were apparently no prodromal symptoms; the child seeming to be in good health that morning when she left

home. The other case appeared at about the same time; showed similar manifestations, but no relation between the two cases could be determined. The essayist gave a brief history of this disease, bringing out the fact which is already well known, that the prodromal symptoms are practically always obscure, in the absence of an epidemic, and the paralytic manifestations have developed before the true nature of the disease is known. This paper was a very interesting one, and it was discussed freely by Drs. Luster, of Galesburg, Sherrick and Ebersole, of Monmouth, and McCutchan, of Alexis.

The next paper was read by Dr. Chauncey Sherrick, of Monmouth, on the subject, "The Relation of Trauma to Appendicitis." This subject of Dr. Sherrick's was a new phase of an old subject. It is frequently stated that the last word regarding appendicitis has not yet been said, and this fact was impressed upon those who heard this excellent paper. This paper also brought out another important point, that of searching persistently for the early and often forgotten facts in the history of a case, which in themselves may be sufficient to make a diagnosis. The paper was discussed by Drs. Franing, of Galesburg; Tombaugh, of Burlington; Mitchell, of Monmouth; McClanahan, of Kirkwood, and E. Wyllys Andrews, of Chicago.

After the discussion of Dr. Sherrick's paper was closed, the next speaker was introduced, Dr. E. Wyllys Andrews, of Chicago, who talked on "Accurate Adjustment of Wounded Edges and Surfaces by the Reunion of Divided Vessels." In his usual characteristic, deliberate manner, Dr. Andrews spoke of the process of wound healing and consequent scar formation. He gave his reasons why the scar following the same kind of operation is not always the same. Some are almost invisible while others are unsightly in appearance, even in clean cases. Dr. Andrews illustrated his talk with original drawings, showing his method of bringing the wound edges in apposition, and laid special emphasis on the necessity of bringing the ends of divided vessels as nearly together as possible, in order to give the greatest possible vascularity to the new tissue. This, in his opinion, was the key to successful scar formation. This paper was discussed by Drs. Sherrick and Mitchell, of Monmouth; Franing, Baird and Maley, of Galesburg, and Tombaugh, of Burlington, after which Dr. Andrews closed the discussion, and casually remarking that this was the first time he had talked on this subject, although he had been interested in it for some time, and had been working on the methods that he recommended.

The next talk was given by a former Monmouth man, Dr. John A. Robison, of Chicago, president of the Illinois State Board of Health. The subject was "The Relation between the State Board of Health and the Community." Dr. Robison illustrated the first part of his talk with stereopticon slides, showing the work done by the board in different parts of the state. He showed the various causes of infant mortality in the state and illustrated many of the points

connected with the etiology of the conditions causing the death of so many infants. He showed that most of the infantile diseases are really preventable, and that the state board of health was at this time trying to minimize them as much as possible. Many health and recreation resorts were pictured, showing what has been done for the sick children who cannot get the care at home that is so essential for their welfare. After he had finished this part of his talk, he told of the work planned by the state board and its relation to the community at large, and asked for the hearty co-operation of every physician in the state. This fine talk was discussed by many physicians present, all of whom enjoyed the paper, and commended Dr. Robison and the present state board for the work they are doing and the things that they have planned for the future, which will undoubtedly do a great deal toward benefiting the health of the residents of Illinois. After this talk, the meeting was adjourned.

Those present at this meeting were: Drs. Ripley, Nash, Franing, Baird, Bohan, Hall, Wm. Maley, Geo. Maley, Johnson, Luster, Early, Corbin, Pollock, Bryant and McClanahan, of Galesburg; Chickering and McClanahan, of Kirkwood; Conant and Clarke, of Roseville; Crosier and McCutchan, of Alexis; Hainline and Crofton, of Seaton; Wright, of Aledo; Hiett and Jewell, of Little York; Marshall and Harter, of Stronghurst; McClanahan, of Viola; LeMaster, of Bushnell; Tombaugh, of Burlington, Ia.; McMillan, Linn, Blair, Unkrich, Graham, Sherrick, Mitchell, Camp, McCoy, Ebersole, Kampen, Burgess, Patton, Drake, Winters, of Monmouth; Zimmerman, of Cameron, and Foster, of Gerlaw. Also the following nurses: Miss Anna Johnson, Miss Herdman, Mrs. Pearce, Miss Patterson, Miss Burns, Miss Stocks, Miss Brooks, Miss Huey and Miss Elsie Johnson, all of Monmouth.

HAROLD M. CAMP,
Secretary.

WINNEBAGO COUNTY.

The Winnebago County Medical Society met in annual banquet at Nelson Hotel, Rockford, Illinois, January 4, 1915. Members present, 26; visitors, 1; Dr. E. E. Ochsner in the chair.

Following the banquet the minutes of the regular meeting held Dec. 8, 1914, and of special meeting held Dec. 24, 1914, were read and approved. Report of the secretary-treasurer was read and Drs. J. E. Allaben and O. Nordvall were appointed a committee of two to audit the treasurer's accounts for 1914. Dr. J. H. Maloney was voted in as a member of the society.

It was moved and seconded that instead of having the doctors' signatures appended to the revised fee bill, a statement be placed under same to the effect that it was passed by the Winnebago County Medical Society in meeting assembled Oct. 13, 1914. Motion carried. The secretary was instructed to write the

Rockford Hotel Co. a vote of thanks for all courtesies shown the society the past year.

Dr. Emil Windmueller, of Woodstock, Ill., councilor for first councilor district, was introduced to the society by the president. He explained that he came to this meeting to learn if a joint all-day meeting of Kane, McHenry, Boone, Stephenson and Winnebago counties could be held in Rockford about February 9, 1915, it being most centrally located. If so, he wished that a surgical and some other paper might be presented by certain members of this society. Dr. Windmueller stated that Dr. Albert L. Brittin, president of the Illinois State Medical Society, would be present to make an address and one speaker from each of the other county societies to be represented. It was decided by our society to have the joint meeting, and the newly elected president, vice-president and secretary were constituted a committee on arrangements for said meeting. It was unanimously decided that Dr. Allaben read a paper on some surgical topic and Dr. S. D. Wilgus another on some nervous disease.

The election of officers for 1915 resulted as follows: Dr. Horace M. Starkey, president; Dr. E. W. Goemmel, vice-president; Dr. C. M. Ranseen, secretary-treasurer; Dr. D. B. Penniman, delegate; Dr. S. D. Wilgus, alternate; Dr. John Tuite, censor.

After the retiring officers had been given a vote of thanks for their services, the meeting adjourned.

DR. C. M. RANSEEN,
Secretary-treasurer.

Personals

Dr. W. H. Mercer has removed from Raymond to Decatur.

Dr. William G. Schmidt, Quincy, is reported to be critically ill.

Dr. J. J. Ellis has removed from Walpole, Ill., to W. Frankfort, Ill.

Dr. Cecil R. Driskell has removed from Farmersville to Raymond.

Dr. and Mrs. F. E. Tulley, of Granite City, are spending the winter in Los Angeles.

Dr. Harry O. Collins has been appointed a member of the staff of St. Mary's Hospital, Quincy.

Dr. Leo M. Czaja, Chicago, sailed from New York, January 13, for work with the Servian Red Cross.

Dr. Lemuel B. Short, health commissioner of East St. Louis, has also been appointed city physician.

The Illinois Society of St. Andrew, at its annual meeting January 8, reelected Dr. John A. McGill president.

Dr. Charles W. Miller, Peoria, was injured January 12, in a collision between his automobile and a street car.

Drs. Albert M. Earel and Robert S. McCaughney, Hoopeston, have been appointed local surgeons for the Chicago and Eastern Illinois Railroad.

Dr. Anna Dwyer has been appointed a member of the Chicago Morals Commission, of which Dr. George B. Young, health commissioner, is a member ex-officio.

Dr. Alden E. Smith, Freeport, has been elected president and Dr. Sara E. Hewetson, Freeport, secretary, of the Stephenson County Antituberculosis league.

News Notes

—At a meeting of the Medical Women's Club, January 13, Coroner Peter M. Hoffman of Cook County delivered an address on "Public Safety."

—A complete Roentgen-ray equipment has been secured at a cost of about \$2,000, and will be installed in the new wing of St. Joseph's Hospital, Elgin.

—Thirty-five patients have been transferred from the Anna State Hospital to the new Alton State Hospital, and are quartered in a farm house which has been remodeled and fitted for that purpose.

—Dr. G. Frank Lydston, Chicago, charging misuse of his name in connection with a book, "Large Fees and How to Get Them," obtained an injunction from Judge Foell against the publisher, W. J. Jackman.

—At the twenty-third annual meeting of the Chicago Ophthalmological Society, held January 18, 1915, the following officers were elected to serve during the ensuing year: President, Dr. Richard J. Tivnen; vice-president, Dr. W. E. Gamble; secretary-treasurer, Dr. Paul Guilford; counselor, Dr. J. Sheldon Clark.

—At a meeting of the Board of Education, January 6, a committee was appointed, consisting of Drs. Peter C. Clemensen, O. F. Warning

and Stephen R. Pietrowicz, to cooperate with Daniel P. MacMillan, director of the Child Study and Educational Research Department, to assist that department in the scientific study of the defective child.

—At the annual meeting of the Association of Military Surgeons of the State of Illinois, held in Chicago, December 28, the following officers were elected: President, Lieut-Col. Jacob Frank, Chicago, surgeon-general of Illinois; vice-president, Captain Arthur F. Wilhelmy, Decatur, and secretary-treasurer, Brig. Gen. S. C. Stanton, Chicago (reelected).

—Eight full scholarships in Northwestern University Medical School have been established by Mr. James A. Patton, who gave a fund of \$27,000 for this purpose. Two scholarships will be given to the two students in the college of liberal arts with the highest gradings each year till all eight are exhausted. The first two will be assigned in June, 1915.

—At the eleventh annual services of the Iroquois Memorial Association, held December 30, Health Commissioner George B. Young, Dr. Patrick Machler and Dr. Clara P. Seippel were the principal speakers. During the last year 17,437 emergency cases were cared for at the Iroquois Emergency Memorial Hospital, nearly 7,000 more than in the previous year.

—It is reported from Macomb that the physicians of that city have rented a portion of an office building and are attempting to work on a cooperation basis, the instruments of each to be of service to others. They will also place the knowledge of each at the disposal of others, and patients will enjoy the advice and consultation of all, at no additional expense.

—The Iowa and Illinois Central Medical Association met in Davenport, Iowa, Jan. 14, 1915, with the following program: "Dementia Praecox," W. A. Crooks, Rock Island; "Treatment of Diseases Through Nerve Reflexes," O. P. Sala, Davenport; "Significance of Visceral Pain," G. E. Decker, Davenport; "Pericolic Membranes," S. C. Plummer, Chicago.

—*The Madison County Doctor* for January prints an honor list of members with the number of meetings attended during the past year. The new president, Dr. Lay G. Burroughs, and the

veteran secretary, Dr. E. W. Fiegenbaum, both score "100%"—as was to be expected. A fine portrait of Dr. Burroughs ornaments the publication and in a sketch of his life it is stated that he is the youngest man ever elected president of the society.

—On January 7, twenty-five members of the staff of the Illinois Charitable Eye and Ear Infirmary, Chicago, gave a farewell dinner to Charles T. Gerrard, superintendent of the institution for the last sixteen years. Dr. Norval H. Pierce presided as toastmaster, and a silver loving cup was presented to Mr. Gerrard by Alderman Dr. Willis O. Nance. Dr. James L. O'Connor has succeeded Mr. Gerrard as superintendent of the institution.

—Dr. Haim I. Davis reports that during 1914 2,807 patients were received at the hospital, of whom 1,677 were men and 1,130 women. The patients were distributed as follows: Chicago State Hospital, Dunning, 1,177; Elgin State Hospital, 397; Kankakee State Hospital, 516; Watertown State Hospital, 7; Peoria State Hospital, Bartonville, 29; Jacksonville State Hospital, 1; discharged cured, 633; transferred to County Hospital, 2; died, 36.

—The Society of American Bacteriologists held its annual meeting in Philadelphia at the Laboratory of Hygiene, University of Pennsylvania, December 29, 30 and 31, 1914. The following officers were elected: President, D. H. Bergey; vice-president, John Weinzirl; secretary-treasurer, A. Parker Hitchens; council, K. F. Kellerman, W. A. Stocking, Jr., R. E. Buchanan, H. J. Conn; delegate to A. A. A. S., M. J. Rosenau. The next regular meeting of the society will be held in Urbana, Illinois. The chairman of the local committee is Professor H. A. Harding. A special meeting of the society will be held in San Francisco during the summer.

—The Robert Koch Society for the Study of Tuberculosis has just been incorporated, with the following as its charter members: Theodore B. Sachs, M. D., Henry B. Favill, M. D., Frank Seward Johnson, M. D., Ethan A. Gray, M. D., John Ritter, M. D., O. W. McMichael, M. D., James A. Harvey, M. D.

The objects, as given in this charter, are as follows: "The promotion of the study of the medical and laboratory aspects of tuberculosis, by bringing together those interested in the study, for discussion; by the formation of special libraries relating to the

subject; by special research work and by such other means as may be found to be desirable; also for the dissemination of information upon the subject among the medical profession."

This society has held fourteen meetings since February 11, 1913.

—We have received from Dr. King of Atlanta, Ga., a beautiful announcement of the opening of the King Sanitarium, which has just been built and equipped in the most modern manner. Dr. King is an honorary member of the Chicago Medical Society and has been one of the most energetic and industrious helpers the past three years in bringing about successful meetings of alienists and neurologists of the United States, held under the auspices of the Chicago Medical Society. We bespeak for Dr. King a most successful undertaking and hope that the physicians of Chicago and Illinois will be as good in giving Dr. King their support as Dr. King has been in giving his valuable aid to Chicago and Illinois.

—President Reinberg of the Board of County Commissioners of Cook County has nominated the following staff of consulting physicians and the nominations have been approved by the county board: Drs. Arthur D. Bevan, Frank Billings, Charles P. Caldwell, James A. Clark, Alfred C. Cotton, Arthur R. Edwards, William A. Evans, Edward A. Fischkin, Burton Haseltine, James B. Herrick, Albrecht Heym, Anton A. H. Holmboe, Charles E. Kahlke, Jacob S. Kauffman, Blue Island, Franklin H. Martin, Mary G. McEwen, John B. Murphy, Albert J. Ochsner, John R. Pennington, Stephen R. Pietrowicz, William E. Quine, John A. Robison, Otto L. Schmidt, Daniel A. K. Steele, Daniel P. Teter, Camillo Volini, Charles J. Whalen and George B. Young.

Marriages

ARTHUR COLUMBIA PEARMAN, M. D., to Miss Katherine Keeler, both of Rockford, Ill., December 12.

Deaths

FRANK A. BARBER, M. D. Bennett Medical College, Chicago, 1878; died at his home in Chicago, December 27, aged 60.

A. E. VAN DEVENTER, M. D. Northwestern University Medical School, Chicago, 1863; died at his home in Oswego, Ill., about December 22.

THOMAS SMITH MIDDLETON, M. D. Medico-Chirurgical College of Philadelphia, 1897; of Chicago; died in New Hope, Pa., December 26, aged 46.

SHERWOOD E. SEELEY (license, Illinois, years of practice, 1877), for half a century a resident of Fulton, Ill.; died at his home, December 18, aged 82.

EDWARD P. WARD, M. D. Berkshire Medical College, Pittsfield, Mass., 1845; a practitioner of Chicago for many years; died in a sanatorium in Kenosha, Wis., December 18, aged 91.

FRANKLIN A. CLEMENT, M. D. Washington University, St. Louis, 1873; for thirty-five years local surgeon for the Burlington System at Greenfield, Ill., and twice mayor of the city; died at his home December 25, aged 64.

CALAWAY GARNER REAGIN, M. D. Miami Medical College, Cincinnati, 1877; a Confederate veteran; for many years a practitioner of Duquoin, Ill., and once president of the Perry County Medical Society; died at his home in Fort Meade, Fla., December 31, from pneumonia, aged 79.

MORLEY DA COSTA BATES, M. D. Rush Medical College, 1891; a Fellow of the American Medical Association; instructor in medicine in his Alma Mater; a member of the staff and treasurer of Grace Hospital, Chicago, and physician to the Metropolitan West Side Elevated Railway Company; died in the Presbyterian Hospital, Chicago, December 24, from cerebral hemorrhage, aged 42.

JAMES DELAFORET WHITLEY, M. D. Rush Medical College, 1874; a member of the Illinois State Medical Society and a Fellow of the Royal Microscopical Society of London; a veteran of the Civil War, in which he served in the Hospital Corps; local surgeon of the Chicago and Alton Railroad; medical health officer of Petersburg, Ill., for sixteen years; died at his home in that city, December 12, aged 70.

Obituary

THADDEUS O. BANNISTER, M. D.

Thaddeus O. Bannister, M. D., New York University, Medical College, 1856; formerly a member of Livingston County Medical Society; one of the oldest practitioners in Illinois; died at his home in Odell, Jan. 18, 1915, aged 81 years.

He began the practice of medicine in Waterloo, N. Y., Jan. 7, 1857, he was united in marriage to Hannah E. Pound of Marengo, and he is survived by Mrs. Bannister and three sons, George Steele, of Chicago, Harry J., of Esbon, Kansas, and Thaddeus O., of Minneapolis. After his marriage he removed to Phelps, N. Y., where he practiced his profession until the Civil war. He was then engaged by the federal government as contract surgeon for duty at Fairfax Hospital, Virginia, and later at Armory Square and Campbell Hospitals, Washington, D. C., where he served till the close of the war. In 1865 he removed to Odell, where he resided continuously. For about thirty years he served actively on the school board and most of that time he was president of the board. His strong, sterling character and wise administration were potent factors in placing our school system on a par with those in the larger cities throughout the state. When he began to feel the infirmities of age and desired to be relieved from further duties on the school board he was urged almost unanimously to continue in service, and when he still refused the entire community expressed regret at losing his valued services. When the village was incorporated in 1872, he was one of the moving figures in perfecting the organization and was elected as a trustee on the first board. From that time on he served on the village board at various times for about fifteen years, either in the capacity of president of the village or as a member of the board of trustees. He was of a progressive spirit and believed in improvements of a permanent character and was instrumental in securing the present water system now owned by the village. In the early days the doctor, in the practice of his profession, was often called to make trips twenty-five miles into the country, when the condition of the prairie roads meant the absence of a day and a night from home. Many times when the highways

were impassable for horses he walked five miles and more into the country to perform service to his fellow men. Such was his devotion to duty.

Dr. Bannister was one of the type of country practitioner immortalized by Jan Maclaren, a lovable man, the trusted guide and councilor for three generations of his clients. Always an ethical man, his contempt for all quacks and "pathies" taxed his vocabulary. Always charitable, he held the quack worse than the infidel.

MEDICAL SCHOOL INSPECTION.

There are 330 public schools in Chicago with an attendance of approximately 330,000, and 250 parochial schools with an attendance of approximately 150,000.

Health officers from the Department of Health made visits according to the tabulation of their daily reports as shown below, since the reorganization in March.

Month	Visits to Public Schools	Visits to Parochial Schools
March	6,975	2,758
April	5,301	1,860
May	5,651	2,185
June	6,373	1,815

Four months' total.....24,300 8,618

It will be seen from the above figures that while the parochial schools handle a little less than one-half as many children as the public schools, only about one-third as many visits are made to them as to the public schools. In other words the children in the parochial schools are receiving very much less in due proportion of the benefit derived from the expenditures of the city for the preservation of the health of the school children. As this money is the product of taxation which is shared by all, the children in the parochial schools are, of course, entitled to a full proportionate share of the expenditure and the department would be very glad to provide the benefit of the medical and nursing service to all such schools.

It is well understood that the best time to conserve health is in childhood. For this reason it is urged upon those who have not as yet permitted school inspection, that they give the department their cooperation now, at the beginning of a new school year.

A vacation that does not recreate is not much of a vacation.

—*Bulletin Chicago Department of Health.*

Do not begrudge your boy a ball game on the vacant lot after school hours. The strenuous exercise he will get in the open air after his day in the classroom will do him good. In other words, do all you can to encourage the out-door habit.

NEW AND NONOFFICIAL REMEDIES.

During December the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Nonofficial Remedies:

Merck & Co.: Arbutin, Merck; Benzene, Merck H. P., crystallizable; Digitoxin, Merck; Silver Citrate; Silver Lactate.

E. R. Squibb & Sons: Pyocyaneus Vaccine; boxes or 2 ampules containing respectively 100 and 500 million killed bacilli.

Pasteur Antirabic Vaccine: The virus is prepared according to the method of the Hygienic Laboratory, Washington, D. C. A dose is sent by mail each day. Twenty-one to twenty-five doses constitute a treatment. Laboratory of W. T. McDougall, Kansas City, Kansas.

Solution Pituitary Extract. A solution of a purified extract of the posterior lobe of the pituitary gland of the ox. Is assayed so that 1 c.c. represents 0.2 Gm. fresh gland. It is used by hypodermic or intramuscular injection mainly to stimulate the uterus contraction in labor. It is supplied in the form of ampules containing 1 c.c. Solution Pituitary Extract. The H. K. Mulford Co., Philadelphia, Pa. (*Jour. A. M. A.*, Dec. 5, 1914, p. 2043.)

Radium Bromide: The market supply is a mixture of radium bromide and barium bromide and is sold on the basis of its radium content. It is sold for use in applicators, inhalatoriums and injection solutions, Radium bromide is marketed as:

Radium Bromide, Radium Company of America. All deliveries are made subject to the test of the U. S. Bureau of Standards or any reputable expert designated by the purchaser. The Radium Company of America, Sellersville, Pa.

Radium Bromide, Standard Chemical Co. Sold by the Radium Chemical Co., Pittsburgh, Pa. (*Jour. A. M. A.*, Dec. 26, 1914, p. 2289.)

Radium Carbonate: The market supply is usually a mixture of radium carbonate and barium carbonate and is sold on the basis of its radium content. It is sold for use in applicators. Radium carbonate is marked as:

Radium Carbonate, Standard Chemical Co. Sold by the Radium Chemical Co., Pittsburgh, Pa. (*Jour. A. M. A.*, Dec. 26, 1914, p. 2289.)

Radium Chloride, Radium Co. of America: This form of radium chloride has been accepted for inclusion with New and Nonofficial Remedies. Radium Co. of America, Sellersville, Pa.

Radium Sulphate, Radium Co. of America: This

form of radium sulphate has been accepted for inclusion with New and Nonofficial Remedies. Radium Co. of America, Sellersville, Pa. (*Jour. A. M. A.*, Dec. 26, 1914, p. 2290.)

Cupric Applicators (Copper Sulphate 20-25 per cent.): Wooden sticks $6\frac{1}{2}$ inches long tipped with a mixture of copper sulphate, alum and potassium nitrate, containing 20 to 25 per cent. copper sulphate. Antiseptic Supply Co., New York. (*Jour. A. M. A.*, Dec. 26, 1914, p. 2290.)

Book Notices

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercy Hospital, Chicago, December, 1914. Published bi-monthly by W. B. Saunders Company, Philadelphia and London.

This volume of Murphy's Clinics concludes Volume III, and is of equal interest as the preceding numbers. He gives the usual space to clinical diagnosis and discusses the following cases:

Appendicitis in pregnancy.

Auto-sensitized autogenous vaccines.

Impacted fracture of external tuberosity of tibia. Sarcoma of the right tibia.

Exostosis of interarticular surface of upper end left tibia.

Multiple metastatic arthritides.

Cartilaginous exostosis of left humerus.

Bilateral tuberculosis epididymitis.

Gummatous tumor of the testicle.

Perforating duodenal ulcer fixed to the anterior abdominal wall.

Retroperitoneal sarcoma of the upper abdomen.

FEVER, ITS THERMOTAXIS AND METABOLISM, by Isaac Ott, A. M., M. D., Professor of Physiology Medico-Chirurgical College, Philadelphia, member of American Physiological Society, ex-president of American Neurological Association, consulting neurologist Norristown Asylum, member of Deutsche Medicinischen Gesellschaft of New York, member of Vereinigung Alter Deutschen Studenten in Amerika, American Society for Pharmacology and Experimental Therapeutics, Society for Experimental Biology and Medicine, member of the American Association for the Advancement of Science, corresponding member of Atlantia Academy of Medicine, member of Philadelphia Medical Club and Chemists' Club of New York, etc. Paul B. Hoeber, 67-69 E. 49th street, New York. 1914.

This little volume comprises three lectures of the Medico-Chirurgical College. It goes rather deeply into the subject of fever, and is of special interest to the physiologist.

ANNUAL REPORT OF THE SURGEON GENERAL OF THE PUBLIC HEALTH SERVICE OF THE UNITED STATES FOR THE FISCAL YEAR 1914. Washington Government Printing Office. 1914.

FORTY-SIXTH ANNUAL REPORT OF THE SECRETARY OF STATE ON THE REGISTRATION OF BIRTHS AND DEATHS, MARRIAGES AND DIVORCES IN MICHIGAN FOR THE YEAR 1912. Frederick C. Martindale, Secretary of State.

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Original Articles

AFTER-TREATMENT OF LAPAROTOMY.*

CHARLES E. HUMISTON, M. D.,
CHICAGO.

Every surgical operation depends for its success upon the observance of surgical principles which are generally understood. The operative technic of the leading surgeons is familiar to every one who has taken the pains to visit their clinics. The apparent variation in the methods pursued by the various surgeons as they go about their work largely disappears on closer inspection. Though it be true that everything which occurs in the operating amphitheater is largely standardized and more or less a matter of common knowledge to all who care to know, the details of the subsequent management of the cases are for a number of reasons much less familiar to the average medical observer. Everyone readily concedes that the postoperative management of abdominal operations is highly important, yet inquiry reveals the fact that this question is one upon which there is a division of thought in many particulars.

One successful surgeon gets his patients out of bed in two or three days, and another equally successful surgeon keeps his patients in bed two or three weeks, and both surgeons express themselves as well satisfied with their results. Are they both too easily satisfied? Or do both overestimate the importance of the amount of time in bed?

Having in mind the divergent views incident to this subject upon which our knowledge is advancing, I thought it worth while to undertake a systematic inquiry into a few particulars of the after-treatment of abdominal operations. I limited my questionnaire to six details, choosing those details which would in some degree in the

average case probably be dealt with in a routine manner.

Accordingly I sent the following questionnaire to one hundred surgeons of known ability and of wide geographical distribution:

"What is your routine treatment following laparotomy, in the following particulars?

- "1. Anodynes.
- "2. Stimulants.
- "3. Nourishment.
- "4. Cathartics.
- "5. Recumbent position.
- "6. Removal of stitches."

In view of the fact that the value of this symposium depends entirely upon the standing of its contributors, their names are published in this article.

It will be observed that they are not all members of some one special society, and that collectively they are well qualified to voice the best surgical opinion of America.

Sixty-six of the seventy replies received are incorporated in this analysis, and it is well to state again that exceptional conditions were not contemplated in this investigation.

A few of the replies were somewhat obscure on one or more points, which accounts for the variation in the number of answers tabulated.

The following is a list of the sixty-six physicians whose replies are given under the six different questions:

Thomas A. Ashby.....	Baltimore, Md.
W. Wayne Babcock.....	Philadelphia, Pa.
Edward A. Balloch.....	Washington, D. C.
J. W. Bovee.....	Washington, D. C.
S. C. Beede.....	David City, Neb.
H. T. Byford.....	Chicago, Ill.
J. Y. Brown.....	St. Louis, Mo.
J. N. Baker.....	Montgomery, Ala.
Carl Beck.....	Chicago, Ill.
J. H. Carstens.....	Detroit, Mich.
A. J. Coley.....	Oklahoma City, Okla.
Thomas S. Cullen.....	Baltimore, Md.
John B. Deaver.....	Philadelphia, Pa.
Robert L. Dickinson.....	Brooklyn, N. Y.
F. H. Davenport.....	Boston, Mass.
Edward J. Doering.....	Chicago, Ill.
George G. Eitel.....	Minneapolis, Minn.

*Read before the Chicago Academy of Surgery and the Livingston County Medical Society.

James B. Eagleson.....	Seattle, Wash.
John F. Erdmann.....	New York, N. Y.
J. Rilus Eastman.....	Indianapolis, Ind.
H. D. Fry.....	Washington, D. C.
Jacob Geiger.....	St. Joseph, Mo.
S. C. Gordon.....	Portland, Me.
George Gellhorn.....	St. Louis, Mo.
Howard Hill.....	Kansas City, Mo.
H. E. Hayd.....	Buffalo, N. Y.
William M. Harsha.....	Chicago, Ill.
William H. Humiston.....	Cleveland, Ohio
O. P. Humpstone.....	Brooklyn, N. Y.
Edward J. Ill.....	Newark, N. J.
Ernest Jonas.....	St. Louis, Mo.
Jabez N. Jackson.....	Kansas City, Mo.
Howard A. Kelly.....	Baltimore, Md.
Charles D. Lockwood.....	Pasadena, Cal.
H. W. Longyear.....	Detroit, Mich.
Henry F. Lewis.....	Chicago, Ill.
Howard Lilienthal.....	New York, N. Y.
H. S. McKay.....	St. Louis, Mo.
J. E. Moore.....	Minneapolis, Minn.
W. P. Manton.....	Detroit, Mich.
C. H. Mayo.....	Rochester, Minn.
H. O. Marcy.....	Boston, Mass.
E. E. Montgomery.....	Philadelphia, Pa.
Stuart McGuire.....	Richmond, Va.
F. S. Newell.....	Boston, Mass.
Alexander Primrose.....	Toronto, Can.
Charles A. Powers.....	Denver, Colo.
John O. Polak.....	Brooklyn, N. Y.
Miles F. Porter.....	Fort Wayne, Ind.
C. E. Ruth.....	Des Moines, Iowa
J. P. Runyan.....	Little Rock, Ark.
Emmet Rixford.....	San Francisco, Cal.
J. L. Rothrock.....	St. Paul, Minn.
J. Knox Simpson.....	Jacksonville, Fla.
Richard R. Smith.....	Grand Rapids, Mich.
Charles L. Scudder.....	Boston, Mass.
Ernest Sachs.....	St. Louis, Mo.
Parkers Syms.....	New York, N. Y.
George R. White.....	Savannah, Ga.
C. H. Wallace.....	St. Joseph, Mo.
H. Wellington Yates.....	Detroit, Mich.
R. C. Coffey.....	Portland, Ore.
William Jepson.....	Sioux City, Iowa
William H. Magee.....	Duluth, Minn.
I. Olmsted.....	Ottawa, Can.
T. C. Witherspoon.....	Helena, Mont.

1. ANODYNES.

Dr. Ashby: I use as little as possible.

Dr. Babcock: Except in very toxic cases or in patients with deficient elimination, we endeavor to make patients comfortable by the use of anodynes for the first twenty-four hours after operation.

Dr. Baker: I use them cautiously to allay pain or restlessness.

Dr. Balloch: Just as little as possible. For the night after operation I generally prescribe a suppository containing a half grain of codein with five or more grains of veronal. This is usually sufficient, but if the pain is severe I see no good reason for withholding morphia. A great deal depends upon the nurse. Some will carry patients along with very little in the way of anodynes, while others want to resort to morphia at every opportunity.

Dr. Beck: Not as a routine, but given after kidneys begin working; freely, if bowels are active.

Dr. Beede: Usually not needed. Used freely in small doses if suffering is severe—morphin or heroin.

Dr. Bovee: Usually give morphin sulphate, gr. ¼,

hypodermically at end of operation, and heroin as indicated afterwards.

Dr. Brown: Not unless there are special indications.

Dr. Byford: None after unless for severe pain. Usually give gr. ¼ morphin with gr. 1/150 atropin three-quarters of hour before operation, and this prevents pains during first few hours.

Dr. Carstens: I give anodyne as soon as the patient gets restless after an operation; I give ⅙ gr. morphin and 1/120 of atropin. This makes the patients sleep. If necessary, I repeat that in three or four hours. I keep them quiet. In the evening, about nine o'clock, I double the dose of morphin and if necessary during the night repeat it. While they are sleeping, the ether is eliminated. If they are dry, which is seldom the case, I let them drink water, cold or hot, or tea or coffee, an ounce at a time frequently repeated.

Dr. Coffey: I give codein in ½ gr. doses, as necessary to make pain tolerable; occasionally morphin.

Dr. Coley: A small dose of morphin and atropin beforehand, when indicated.

Dr. Cullen: All abdominal cases—in fact every case where there is liable to be much pain after operation—are given ¼ grain morphia before they leave the table and sufficient morphia to make them comfortable for 24 or 48 hours, as may be deemed necessary. I never use less than ¼ gr. A smaller amount keeps the patient restless or slightly stupefied. After 24 or 48 hours morphia is cut off absolutely and they receive no more during their sojourn in the hospital.

Dr. Davenport: Morphin the day of operation; if severe pain, salt solution enema.

Dr. Deaver: Exceptionally only.

Dr. Dickinson: Routine order for hypodermics of morphin p. r. n. for the first 24 hours.

Dr. Doering: None, except as required for severe pains. In cases I have personally watched, I give hypodermics of ¼ gr. morphin sulphate plus 1/200 gr atropin before operation.

Dr. Eagleson: I believe that anodynes given in sufficient quantity to relieve pain during first 24 hours both lessen the shock and hasten convalescence.

Dr. Eastman: One or two suppositories containing 2 grs. of codein sulphate (Albany Chemical Company) are usually given during the first 48 hours following operation. Morphia gr. ⅙ hypodermatically is administered in selected cases.

Dr. Eitel: Usually one-half hour before ether is started we administer hypodermically morphin sulphate gr. ¼ and atropin gr. 1/100, and, if necessary, on account of pain, repeat the same once or twice during the first 24 hours.

Dr. Erdmann: One-sixth gr. morphia as the patient begins to "come out" and ⅙ in one-half hour after, if necessary. Sufficient anodynes to give comfort for 24 hours following.

Dr. Fry: Hypodermically, heroin gr. 1/16 to 1/12 or morphia gr. $\frac{1}{8}$ to $\frac{1}{4}$ with atropia gr. 1/150.

Dr. Geiger: Small dose of morphia and atropin.

Dr. Gellhorn: Morphia 1/6 hypodermically for wound pain only in the first 20 hours after operation; asafetida enema for gas pains whenever necessary.

Dr. Gordon: I give anodynes to relieve pain.

Dr. Harsha: Heroin, and bromides if patient is not depressed too much.

Dr. Hill: We usually relieve the pain to a reasonable extent, preferring, however, not to give more than two hypodermics the day of operation, trying to tide the patient through the next day and until night by other means and usually giving no more morphin after the end of the second day. Unusual cases require more, but our intention is to keep to the point mentioned.

Dr. Hayd: I give none, if possible, and very seldom in recent years have I given more than $\frac{1}{8}$ of morphin twice after any laparotomy.

Dr. Humiston: As a routine, a rectal suppository of codein, grs. $1\frac{1}{2}$ the first ten hours following laparotomy.

Dr. Humpstone: Anodynes are avoided as much as possible.

Dr. Ill: Rarely give any except in restless patients. Crile's method has improved matters.

Dr. Jackson: Every patient following operation has a hypodermic of $\frac{1}{4}$ gr. of morphin given as soon as recovered from anesthetic sufficiently to suffer pain. Morphia is repeated as required sufficiently to prevent excessive pain during the first 24 hours, after which it is rarely needed. This routine is not only humane, but in every way beneficial and with no objection that I have been able to discover.

Dr. Jepson: We avoid the use in so far as possible, but nevertheless their use becomes frequently necessary during first 24 hours.

Dr. Jonas: If necessary morphia 1/6 gr. or narcephin $\frac{1}{2}$ gr. on the day of operation.

Dr. Kelly: By order only. Generally morphia sulphate gr. 1/6 once or twice in first 24 hours.

Dr. Lewis: Morphin p. r. n. for severe pain only.

Dr. Lilienthal: If needed. No routine.

Dr. Lockwood: Codein $\frac{1}{2}$ to 1 gr. or morphin gr. $\frac{1}{4}$. I use much less since adopting anoci-association.

Dr. Longyear: Usually a hypo or two of morphia gr. $\frac{1}{8}$ and afterwards heroin gr. 1/12 a hypo. As little as possible, however.

Dr. Manton: Anodynes. Codein phosphate, gr. 1, hypo. p. r. n. for pain or restlessness. Only in rare instances when suffering is very great or patient is noisy, and so forth, morphin sulphate, gr. $\frac{1}{4}$, possibly repeated two or three times.

Dr. Magee: Morphin sulphate, gr. $\frac{1}{2}$ hypodermically to allay pain.

Dr. Marcy: The minimum use of hypodermics of morphia and strychnia, occasionally opium by rectum.

Dr. Moore: One-quarter gr. morphia with atropin one hour before anesthetic. After the operation it is given in exceptional cases under positive indications.

Dr. Montgomery: If the patient is fairly comfortable, I do not give any. If, however, her discomfort is such as to keep her from resting, I give her a hypodermic injection of morphin $\frac{1}{4}$ to 1/6 gr. the night following the operation, and unless some complication develops no further hypodermic injection is given. The second night I sometimes give an enema of deodorized tincture of opium, 4 minims, tincture of valerian, $\frac{1}{2}$ ounce, salt solution 2 ounces. The advantage of this mixture is that if the patient subsequently desires it repeated it can be done leaving out the opium.

The Mayos: We give morphin the first day following laparotomies, if the pain is severe. After the first day we try to get along with codein in place of morphin where it is possible, but have no objection to giving on occasional dose of morphin for three or four days in severe cases.

Dr. McGuire: Small doses of morphia or atropia hypodermically; repeated as indicated.

Dr. McKay: Morphia sulphate hypodermically first 24 hours for pain and restlessness, when necessary.

Dr. Newell: Morphin as necessary to control pain.

Dr. Olmsted: Morphin for first 24 hours, if necessary.

Dr. Polak: Morphia just before anesthesia and again after reaction; then carried along with scopolamin, gr. 1/400.

Dr. Powers: Practically nothing; if necessary, codein or a little morphia.

Dr. Porter: Usually they are not required, but are given, if needed, to secure the quiet and comfort of the patient.

Dr. Primrose: When necessary to relieve pain, if the cause of the pain cannot otherwise be removed.

Dr. Rixford: If pain is severe, I do not hesitate to give sufficient opiates to control it. If there is much nausea I prefer heroin to morphin. If there is great restlessness I often give chloral or bromides with or without a moderate dose of deodorized tincture of opium by rectum, which makes the first night after operation much more tolerable. Chloral, of course, omitted if there is much cardiac depression. Barring nausea, I do not know that I have ever seen any untoward effects from the use of anodynes after laparotomy given with reason.

Dr. Rothrock: Morphin in small doses the first 24 or 48 hours if much pain.

Dr. Runyan: Give $\frac{1}{8}$ morphia and 1/150 atropin when necessary to relieve pain during first 24 hours. Always precede operation by $\frac{1}{4}$ gr. morphin and 1/150 atropin hypodermically.

Dr. Ruth: Very little, if any, 1/12 gr. heroin hypodermically only.

Dr. Sachs: Aspirin, at times morphin sufficient to keep the patient comfortable, usually one dose is all that is necessary.

Dr. Scudder: Morphia or codein immediately after operation unless contraindicated.

Dr. Simpson: I have no routine. I give morphin sulphate in doses of $1/6$ gr., when necessary for pain, and prefer to have the ill effects of morphin rather than those from nights of restless suffering. I suppose a fairly accurate guess would be that one hypodermic of the above amount is given the first night in 75 per cent. of my cases, the remaining 25 per cent. receiving none.

Dr. Smith: Codein, grs. 1 to $1\frac{1}{2}$ hypodermatically p. r. n., seldom more than three or four doses altogether; morphin, gr. $1/4$, if codein fails. (Rarely used.)

Dr. Syms: None.

Dr. Wallace: Morphin, gr. $1/8$, and repeated a second time if needed.

Dr. White: Used freely for pain if required.

Dr. Witherspoon: I find no contraindication usually to the use of an anodyne. I prefer codein phosphate hypodermically, one to two grs. with possibly a repetition where the pain is severe. I see no contraindication to $1/4$ gr. of morphin under like conditions.

Dr. Yates: Limit them to the least possible degree and when given use codein subcutaneously.

It will be observed from the quotations given that definite fixed rules are not in evidence. However, a careful reading of all the communications permits the following tabulation:

Analysis of Replies on the Use of Anodynes.

Anodynes—

None	20	} 65
Sparingly	35	
Freely	10	
Morphin	32	} 66
Codein	15	
Heroin	4	
Veronal	1	
Bromides	11	
Scopolamin	1	
Aspirin	1	
Chloral	1	

In listing twenty as giving "none" it must not be understood that twenty of the sixty-six absolutely withhold anodynes regardless of conditions. What is aimed at in this study is an approximate routine for the average case in the absence of special indications. The list of drugs is based upon the number of times the particular drugs were mentioned. Some of the replies name two or three drugs, and others none at all. It is worthy of note that the use of anodynes is largely limited to the first 24 hours following operation.

2. STIMULANTS.

None	62	} 65
Routine (?)	3	

Drugs—

Strychnine	16	} 43
Digitalis	7	
Whiskey	6	
Camphorated Oil	5	
Coffee	4	
Caffeine	1	
Adrenalin	1	
Eserine	1	
Glucose	1	
Alkalies	1	

Salt Solution—

Per rectum	8
Subcutaneously	8

Tap Water—

Per rectum	8
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It is apparent at once that the routine administration of stimulants has been abandoned—at least as far as drugs are concerned. Tap water or salt solution per rectum seems to be growing in favor.

3. NOURISHMENT.

Dr. Ashby: After 24 hours liquid diet, if digestive organs are in good condition.

Dr. Babcock: After simple abdominal sections, water or barley water given in small but increasing amount from the first. Soft diet is given as soon as the bowels have been thoroughly emptied. In septic patients we aim to give nothing by mouth until localization of the septic focus has occurred.

Dr. Balloch: No slops. I have given up altogether the use of broths and I regard albumin water as an invention of the devil. I wait until the patient becomes hungry, as a rule, and then give him what he wants to eat, if his demands are not too outrageous. In cases needing feeding from the start, I use some of the fermented milk preparations, or scraped beef, both of which I find that the stomach takes care of very well. I give solid food as soon as possible in some cases the day after operation, and in nearly all cases on the third day after operation. My patients do and feel much better than under the old routine of liquid food for three days, etc.

Dr. Bovee: Hot water *ad libitum* from then until stomach is not rebellious, then cautiously albumin water and broths, and buttermilk for five days, then cereals, poached eggs, soft boiled eggs, etc., to seventh day and then nearly regular diet.

Dr. Byford: None, except plenty of water, during first 24 hours; small quantity of liquid food every three hours on second and third days. After that liquid diet and toast and butter in mild cases, eggs, cereals; at end of first week meat, eggs, toast, fruit for breakfast, etc.

Dr. Carstens: I give them liquids, chicken broth, egg albumin and plenty to drink. I have great trouble to have nurses understand giving water; they will give three or four ounces three or four times a day. This is the second and third day, when the effects of the saline have passed off. These patients need large quantities of water to eliminate effete material by

skin and by the kidneys; it fills up the blood vessels; give them a gallon or two, all you can get them to take.

Dr. Coffey: After gas has passed freely from bowels, usually on third day.

Dr. Erdmann: Water in first 12 to 24 hours; tea, albumin, broths. Twenty-four to 48 hours, milk, semi-solids; 48 to 72 hours, semi-solids to solids, except special work as gastric surgery, etc.

Dr. Gellhorn: Liquid nourishment day after operation; soft diet the following day, light on third, and full diet on fourth day.

Dr. Hill: Food is not needed until the end of the second day. As soon as the appetite returns we put the patient on good substantial food, so that we almost never give a liquid diet, but start at once on a so-called light diet, as I believe that when the appetite returns, if the operation has not been one on the stomach or intestines, that this is well tolerated, if not given in too great quantities.

Dr. Humiston: None for first 24 hours. Thin liquid broths and malted milk.

Dr. Cullen: The nourishment in nearly all abdominal cases consists of egg albumin for a few hours. Every patient is allowed as much water as they desire from the moment they wake up. As soon as the bowels move whether by enema or as a result of cathartics, the patient is put on soft diet. There is no doubt that a liquid diet tends to produce gas, consequently I replace the liquid by a soft diet at the earliest possible moment.

Dr. Davenport: None until nausea has ceased, then small quantities of albumin water, milk and lime water, if patient wishes, until bowels have moved.

Dr. Deaver: Nothing until commence to pass gas, then albumin water, beef tea, chicken broth, buttermilk, etc.

Dr. Doering: First day usually nothing, but water administered frequently second and third, liquid food, small quantity every two hours; later semi-solid diet.

Dr. Eastman: Ordinarily hot tea is allowed on the day following operation, liquid diet from the third to the sixth day, soft diet from the sixth to the ninth, and then house diet.

Dr. Jackson: Patients are allowed to have water freely, if desired, practically from the outset, and at the end of 24 hours, unless nauseated, which is rare, are permitted liquid nourishment freely. After the cathartic on the fourth day they are ordinarily allowed anything they want.

Dr. Jepson: This is administered after the first 24 hours, or as soon thereafter as the patient is inclined to accept it.

Dr. Kelly: Liquid diet begun in 24 hours unless drained or gastric cases.

Dr. Lilienthal: Liquid after 24 hours. No milk.

Dr. Longyear: Broth only for 3 days; soft diet for 6 days, no milk till after laxative.

Dr. Manton: Generally nothing by mouth for 24 hours, occasionally, if no disposition to vomit, sips hot water. Toast 24 hours, fluids, preferably hot, two

ounces every 2 hours. No milk. Usually three to four days, light soft diet; full diet by end of week.

Dr. Marcy: Fluid food, small quantities given often.

Dr. Moore: Given freely as soon as patient's stomach will retain it.

Dr. Montgomery: Nothing but hot water until the patient is relieved of the nausea of the anesthetic. If this is prolonged, salt solution is given by rectal instillation. If the stomach is quiet a cup of tea or broth the evening of the operation. The following day, broth, poached egg, broth. After the third day a fairly generous diet.

The Mayos: Hot water the afternoon of the operation, an ounce at a time, gradually changing to cold water if nausea is not present. The patient is kept almost entirely upon liquids for three days. The fourth day castor oil, two ounces, as a routine. After a good result has been obtained from the cathartic, the patient is placed upon a semi-liquid diet for the first week, full diet from that time on, except in selected cases.

Dr. McGuire: Broths, buttermilk and albumin after first 24 hours; eggs, toast, ice cream after third day. Light diet after fifth and general diet after sixth day.

Dr. Polak: Water *ad libitum* after the first six hours; later cereals, with milk sugar.

Dr. Porter: This depends somewhat upon the character of the case. My rule is to give nothing but water until the patients feel the desire for food. These are first liquid, to be followed cautiously by more substantial things until an ordinary diet is given.

Dr. Primrose: As early as possible.

Dr. Rixford: Unless the patient is actually suffering from want of food, I give none until peristalsis is established or the passing of gas by rectum, which is generally on the second or third day, and then I begin with clear broth, consommé and albumin water, particularly avoiding milk. The second day I generally give gruel. On the third or fourth day I give solid food. If the patient is in great need of food from the beginning I give peptonized milk by rectum four ounces every four hours.

Dr. Ruth: None first 24 hours save water by proctoclysis, then usually grape juice, malted milk, and raw egg for two or three days.

Dr. Sachs: Nothing by mouth if the patient vomits. Then fluids, which are usually begun after 12 hours. Food, when there is no longer evidence of intestinal paresis, as shown by passage of gas.

Dr. Scudder: Influenced by gastric disturbance. Liquids for at least 24 hours, getting back to solid food as soon as possible.

Dr. Simpson: Liquid nourishment is given as soon as the post-anesthetic vomiting ceases, except in stomach cases, which get only hot water for 48 hours. Regular hospital diet is begun after the first cathartic. Soft diet is given in the majority of the cases on the fourth day.

Dr. White: Liquid nourishment day after operation; soft diet next day.

Dr. Yates: Liquid food for three days; then, if bowels have operated, full soft diet. After the fifth day in an uncomplicated case, full diet.

Analysis of Replies on Nourishment

Nourishment—

None first 24 hours.....	54	} 65
Yes first 24 hours.....	5	
None first 48 hours.....	6	
<hr/>		
Limited to liquids first 24 hours.....	2	} 59
Limited to liquids first 48 hours.....	6	
Limited to liquids first 72 hours.....	51	

4. CATHARTICS.

Dr. Ashby: After 48 hours if necessary.

Dr. Babcock: Cathartics are never given by mouth until an evacuation has occurred by the use of enemas, after this an endeavor is made to secure a daily action either by laxative or enema.

Dr. Baker: Rarely used. An alum enema to empty large bowel of gas and to relieve discomfort.

Dr. Balloch: I seldom use them. Prefer to rely upon diet and enemas.

Dr. Beck: Third day castor oil.

Dr. Bovee: About fourth day eserine salicylate, and an enema for a stool.

Dr. Brown: Generally third day.

Dr. Byford: Glycerin enemas if called for during first two days; saline cathartic on third day or earlier if needed.

Dr. Carstens: I give an enema of four ounces of glycerin and four of water in about 48 to 72 hours, and occasionally after that repeat it. After that I give them a dose of cascara, as needed. I have them lying in any position they like. I give them several pillows or a head rest as soon as they want it.

Dr. Coffey: Give high comp. enema forty-eight hours after operation. Occasionally give cathartics by mouth after fifth day—never until bowels have emptied by use of enema.

Dr. Cullen: The variety of cathartics varies. Cascara is used by some. Calomel is rarely employed. Where we are the least bit afraid that intestinal obstruction will result, no cathartic is given. We rely entirely on enemata.

Dr. Deaver: No.

Dr. Doering: Enemas as required, saline laxative third morning.

Dr. Geiger: Castor oil; sometimes small dose of calomel.

Dr. Gellhorn: Castor oil, one ounce, forty-eight hours after operation; 72 hours after operation if appendix has been removed. Phenolphthalein, grains 2, every evening after bowels have moved. S. S. enema if needed.

Dr. Hill: With regard to cathartics, at present we never give them before operation, relying upon an enema to clear the bowels the morning of operation. I never give a cathartic for about six days after the operation.

Dr. Humiston: Third day; saline usually.

Dr. Humpstone: Not used.

Dr. Ill: Rarely before the fifth day, then magnesium sulphate.

Dr. Jackson: If suffering from gas in the early days this is relieved by enemata. On the fourth day all patients, or practically all, receive two ounces of castor oil. Thereafter cathartics are rare and only given as needed.

Dr. Jonas: Enema, glycerin, oil, 3 ounces on third day. If necessary, castor oil on fourth day.

Dr. Kelly: A B S and C in 48 hours.

Dr. Lilienthal: After say 4 to 8 days, but enemata if needed meantime. Much depends on character of disease and operation.

Dr. Manton: No cathartics before operation. Bowels usually moved by enema third day. Usually no cathartic for first week.

Dr. Moore: Second to fourth day, owing to circumstances.

The Mayos: No cathartics until after all drains have been removed. No cathartics in cases in which the intestines or stomach have been operated upon. In other cases, two ounces of castor oil on the morning of the fourth day as a routine.

Dr. McGuire: S. S. enema from first for gas. Gentle laxative like cascara or licorice powder second or third night.

Dr. Porter: Cathartics are used very sparingly. The rule is to pay no attention to the bowels as long as the patient is comfortable on this score. In the average case the bowels move with an enema and a proper diet. In the past I think cathartics have been abused in the latter treatment of laparotomy.

Dr. Primrose: Secure a daily movement of bowels after first 24 hours is usually indicated.

Dr. Rixford: I almost never use cathartics after operating, on the ground that they cause a disproportionate amount of suffering to the good they accomplish. If peristalsis is not reestablished without their aid they serve little purpose except to distend the still paralyzed parts of the bowel. If peristalsis is reestablished there is little object if any in giving them beyond evacuating the colon, and this can be better accomplished by means of enemata. If there is much distension I give frequent enemata containing asafetida or turpentine. I occasionally use atropin or if the heart is not depressed eserine for excessive meteorism.

Dr. Runyan: None given until third or fourth day. Castor oil or epsom salts to suit case of patient.

Dr. Ruth: Laxatives in pill form, magnesium sulphate (Squibb's) or enemas second or third day if needed, usually nothing is needed.

Dr. Sachs: No cathartic until intestinal paresis has disappeared, so that the patient practically never gets a cathartic before the third day.

Dr. Scudder: Rarely cathartics by mouth. Depend upon enemata very largely.

Dr. Simpson: For cathartics, castor oil is given from fourth to sixth day depending on case. No cathartic is given a drainage case until the tube is out.

Dr. Syms: None. Enemata.

Dr. Wallace: Castor oil as a rule at end of 48 hours.

Dr. Witherspoon: Cathartics are not used by me until bowel and stomach conditions are good, then preferably a mild and acid preparation, such as milk of magnesia.

Dr. Yates: I prefer castor oil given in beer the morning of the third day.

Cathartics: Analysis of Replies.

Cathartics—

None by mouth.....	18	} 55
During first 24 hours.....	1	
During second 24 hours.....	9	
During third 24 hours.....	22	
Fourth day or later.....	5	

Drugs—

Castor oil	12	} 39
Salines	12	
Calomel	6	
Milk of magnesia.....	4	
Cascara sagrada	3	
Pill A. N. & B. & C.....	1	
Phenolphthalein	1	

5. RECUMBENT POSITION.

Dr. Ashby: Only when required.

Dr. Babcock: Except for some very special reason the recumbent position is not insisted upon. We prefer to turn the patient than to give anodynes for backache. The Fowler position is used after operations for intra-abdominal infection, and after operations upon the stomach. In simple appendectomy patients are permitted to sit up or get out of bed as soon as they desire to, provided the movement produces no discomfort. As far as is feasible, and excluding those patients who have grave infections, we like to combat the condition of being bed-fast by early massage and frequent changes of posture.

Dr. Balloch: I consult the feelings of the patient. If she feels that she would like to be propped up, I let her try it. I am not in any great hurry to get my patients out of bed. I find that a good rest out of operation does them good and they go home in better shape than after an early getting out of bed.

Dr. Beck: Recumbent position in case of operations on lower abdomen and drainage.

Dr. Bovee: Recumbent position only until stomach is quiet.

Dr. Byford: First week for benefit of abdominal incision. Back rest in bed second week, and out of bed early in second week.

Dr. Coffey: From ten to fourteen days after operation.

Dr. Coley: Recumbent position unless pus in pelvis, then Fowler's.

Dr. Cullen: In all bad appendix cases we drain and invariably place in Fowler's position immediately after operation. In simple cases where there is difficulty in voiding urine they are given a back rest within twenty-four to forty-eight hours.

Dr. Davenport: For ten to twelve days.

Dr. Eastman: The recumbent position is assumed until the tenth to fourteenth day.

Dr. Erdmann: Any old position that the patient obtains comfort in—even flat on the belly.

Dr. Gellhorn: Rest in bed for ten days; turn on side immediately after operation; out of bed on eleventh day; walking on twelfth day.

Dr. Gordon: Much depends on character of operation; as a rule, recumbent position for two weeks.

Dr. Hill: With regard to the time in bed, we have receded from our one time method of forcibly getting the patient up early, and at present leave our patients in bed at least seven days, generally ten. Other cases with drainage wounds are not allowed up until the wound practically closes.

Dr. Humiston: For ten days, changing positions every few hours.

Dr. Humpstone: Ten days for pelvic surgery.

Dr. Ill: Elevate the feet for twelve hours in all non-drainage cases. Elevate the head otherwise.

Dr. Jackson: I get all my patients up out of bed as early as practicable; simple appendectomies in twenty-four to forty-eight hours, and ordinary clean laparotomies on about the fourth day. The simple cases usually begin walking upon the third or fourth day, and larger cases are walking at the end of a week. Only infected cases are kept in bed longer.

Dr. Jepson: Except in septic cases, where it is desired to have the position of the patient aid the walling off of an infected area, patient may lie as he or she is disposed.

Dr. Jonas: Mostly Fowler position as soon as patient awakens from narcosis. Out of bed on seventh day.

Dr. Kelly: Yes.

Dr. Lewis: Not insisted upon; Fowler's if operation was for pus; sit up in bed third day, and in chair seventh day, if desired.

Dr. Lilienthal: Six days to three weeks, according to length and location of wound.

Dr. Lockwood: Ten days.

Dr. Longyear: Fourteen days.

Dr. Manton: Depends on nature and severity of operation; ten days to three weeks.

Dr. Marcy: Yes, important; occasionally the Fowler position.

The Mayos: All patients are placed in a recumbent position, except septic cases, which are placed in a Fowler position.

Dr. McGuire: Nine days for appendix (with drainage); fourteen days for a hernia; twenty-one days for median incision.

Dr. Olmsted: Yes, in all upper abdominal operations, and also in cases of peritonitis.

Dr. Polak: For first twenty-four hours; freedom of motion after; in roll chair on roof on fifth or sixth day.

Dr. Porter: In mid-line incisions in hernia and especially in incision above the umbilicus, I prefer to have my patients maintain a recumbent position for from ten days to two weeks. Patients that are reduced and

that have had an exploratory examination for carcinoma and old people are gotten up in a sitting posture within a few days.

Dr. Primrose: Usually, but Fowler's position in acute peritonitis requiring drainage; also in most gastroenterostomies.

Dr. Rixford: I think it is a great mistake to sit patients up too soon after any exhausting operation. Frequent change of position is more efficacious in preventing pulmonary stasis. I am very apt to permit the patient to take that position which he finds most comfortable. Partial flexion of the lumbar region relieves the tension on the abdominal wound. I keep all patients in bed, that is, in more or less recumbent position for two weeks, except in cases of hernia, which are kept recumbent for three weeks.

Dr. Scudder: Position most comfortable to patient. Fowler's position in septic peritonitis, semi-sitting position following stomach plastics.

Dr. Simpson: I do not insist upon the recumbent position. In clean cases I allow them to assume the most comfortable position. In drainage cases the position most favoring gravity drainage.

Dr. Smith: Back rest a few days after operation and during the first ten to fourteen days. After that up in a chair. Out of bed walking about two to two and one-half weeks after operation. This rule varies much according to circumstances.

Dr. White: Fowler's position after operation; sit up in bed tenth day.

Dr. Witherspoon: In most of my cases I prefer a mild Fowler in bed, the head being raised upon blocks six or eight inches high. I think this makes for comfort and helps peristalsis. Where drainage is necessary, the elevation of the head is increased considerably.

Dr. Yates: Keep them recumbent until third day, then permit head rest. Uncomplicated afebrile cases sit up in chair on seventh day. A bed was never made to sit up in.

Recumbent Position: Analysis of Replies.

Recumbent Position—

For 3 days.....	2	} 64
For 6 days.....	1	
For 7 days.....	5	
For 10 days.....	13	
For 12 days.....	22	
For 14 days.....	8	
Up as soon as patient wishes sitting position 1		

Removal of Stitches: Analysis of Replies.

Stitches—

Sustaining 7 days.....	1	} 66
Sustaining 8 days.....	6	
Sustaining 9 days.....	2	
Sustaining 10 days.....	21	
Sustaining 12 days.....	10	
Sustaining 14 days.....	13	
Absorbable only	13	

Keeping in mind the fact that the longer communications permitted the writers to set forth their views with greater emphasis than

the short statements permitted, and yet not adhering strictly to deductions based absolutely upon numbers, a careful study of all of the sixty-six communications upon the question of routine after-treatment of abdominal operations justifies the following composite statements:

1. *Anodynes.* If the patient is fairly comfortable, do not give any; if the pain is severe, give morphin the first 24 hours following operation, and endeavor to be done with opiates by the end of the first 48 hours.

2. *Stimulants.* None.

3. *Nourishment.* Give only water during the first 24 hours, then liquids, except milk, for two days, follow by a light soft diet, increasing to general by the end of the first week.

4. *Cathartics.* After drains are out, and excepting stomach and intestinal operations administer a cathartic at the end of the third day.

5. *Recumbent Position.* Keep the patient in bed one or two weeks with frequent change of position.

6. *Stitches.* Remove the sustaining non-absorbable sutures toward the end of the second week.

TRAUMATIC HERNIA, AND ITS RELATION TO THE WORKMEN'S COMPENSATION ACT*

R. ROBINSON DUFF, M. D.,
CHICAGO, ILL.

"It is decidedly rare for a hernia to be formed suddenly," writes a modern authority. "Hernia is always of a slow formation, and very few persons are aware of its oncoming," says another observer, and a number of cases cited by various writers confirm these statements; while there are also other instances given in which injuries of different kinds resulted in the sudden appearance of a hernia.

We seem to lose sight of the fact that a blow which is sufficiently severe to produce a hernia, whether it be direct or indirect, would be apt to do violence to the other abdominal organs to prove fatal. Any intra-abdominal pressure sufficient to cause a tearing or separating of the abdominal wall, great enough for a hernia to appear, would give rise to the following symptoms which are those typical of a true traumatic hernia:

*Read before the Chicago Medical Society, Jan. 20, 1915.

History of a sudden onset, overlifting,
or severe strain.

Shock varying in degree.

Patient seeks immediate medical aid.

Pain—Patient found in stooping posture.

Weakness, nausea and sometimes vomiting.

Impulse upon coughing, generally found high up in the canal.

Swelling varying in size, usually small.

Marked tenderness over entire area.

Note—The swelling does not appear when the patient assumes the upright position; but an impulse will be felt in canal when patient is instructed to cough.

If the hernia is irreducible, and the above symptoms are exaggerated, and coughing, and straining do not influence the tension in the hernial sac it is indicative of a strangulated hernia. In other words, a traumatic hernia complicated by strangulation.

I herewith submit to your examination and discussion a typical case of true traumatic hernia.

In my opinion, 98 per cent of all cases of hernia brought to our attention cannot be classed under the head of traumatic hernia, but are potential herniae and therefore do not come under the Workmen's Compensation Act.

While Pember and Nuzum, in their recent article on traumatic hernia, cite two cases in which a hernia appeared immediately after an accident, they also say in their conclusions:

"Traumatic hernia is not likely to be produced by a blow which is short of lethal, unless a puncture wound is produced."

Dr. J. P. Hoguet reported in 1911 a series of cases in which an inguinal hernia developed after appendectomy, the cause being an injury to one of the abdominal nerves. He says:

Altogether eight cases of right inguinal hernia were found in which there had been a history of an antecedent appendectomy, the time of appearance of the hernia varying, *the shortest one being two weeks after leaving the hospital, and the longest, four years.* The greater proportion occurred in those cases in which the appendix wound had been drained, and in which, of necessity, it was larger, with a greater chance of nerve injury, whether by directly cutting the nerve in doing the laparotomy or by the pressure

on the latter by a drainage tube. (The italics are ours.)

Dr. Joseph Wiener, writing in November, 1910, on the cure of hernia, reported a case in which a hernia developed in the scar five months after an abdominal operation for the removal of diseased adnexa.

In another of his cases a hernia developed a year after an operation for appendicitis, the hernia in this case also occurring on the site of the scar.

Hernia results, in almost every instance, from the gradual stretching of tissue and escape of the abdominal contents, either into a preformed (congenital) sac, or by the formation of a sac (acquired) from the peritoneal lining of the abdomen. A *congenital sac* may have existed long before the protrusion of the hernia, by the persistence of a pouch of peritoneum (tunica vaginalis), which normally should have been obliterated at, or shortly after birth.

I wish here to call your attention to the descent of the testicle.

At the eighth month of intra-uterine life, we find the testicle leaves the abdominal cavity through the internal ring, pushing before it a process of peritoneum known as the processus vaginalis; that portion immediately surrounding the testicle being known as the tunica vaginalis testis. Normally this process becomes adherent around the testicle, cord and its structures, obliterating the canal, if you please, but we all know from our dissecting room experiences, it is not uncommon to find this canal still patent, closed only at the internal ring, or just above the testicle.

F. T. Fort, in his paper on inguinal hernia, expresses the opinion that nearly all, if not all, inguinal herniae are of congenital origin.

With regard to traumatic hernia, Dr. P. C. Pilon said in a recent article:

The subject of traumatic hernia is of the greatest importance to companies which employ railway labor, as there is seldom a time when the individual railway companies are not taking care of a score of so-called traumatic hernial cases among their employees and patrons.

The above writer says that traumatic hernia may occur in men without anatomic defect, "but at an unguarded moment, when the muscles surrounding the normal canal are relaxed, flabby, and without resistance to an additional intra-abdominal pressure."

Such hernia may result from a sudden strain,

or a fall or a crushing blow, even if a commencing hernia did not exist.

"Both legislation and medical literature recognize it, but it is undoubtedly a very rare occurrence."

Concerning the methods by which an old hernia may be recognized from a post-traumatic, recent one, Pilon says that the local evidences of external violence are shown by a sudden swelling, always of small size in traumatic hernia, varying from an almond to that of an egg. If scrotal, the hernia is an old one and difficult to reduce. Further, the traumatic hernia will be one-sided only. Ecchymosis may be present, though not of necessity. In traumatic hernia, also, the manifestations occur soon after the accident. Pilon adds:

If the result of trauma the symptoms are always acute. There is always much pain and local tenderness.

In fact, the German law lays great stress on the violence of the immediate symptoms in requiring that the injured must seek medical attention within 48 hours and that the physician at that time finds evidence of recent hernia. A patient who complains of a hernia several days after the accident, had a hernia before the accident occurred.

If the hernia is of traumatic origin, on the operating table soon after the accident the sac will be found very thin, as of tissue severely distended, there will be no indurated or adherent omentum, and the ring of fibrous tissue found in old hernias will be absent; its presence will indicate that the hernia has existed for some time.

P. A. Bendixen, a railway surgeon, writing in 1911 on "Traumatic Hernia," said:

From a practical standpoint, we may group traumatic hernia into two classes, namely, true traumatic and accidental. The essential difference in these groups lies in the fact that in the true traumatic variety all parts of the hernia, the orifice of the sac, the sac itself, and the contents of the latter, are the direct result of external violence.

In the accidental hernia, on the other hand, the sac and its orifice being already in existence, the entrance of the intestine is brought about by the action of some force. (Lotheissen.)

The number of accidental hernias, or as Hansen calls them (force ruptures) is larger than the true traumatic variety.

Observations have been made in several foreign countries, and by different corporations in this country, showing a large number of claims for the alleged presence of traumatic hernia could be traced back to the fact that the hernial condition had been present for some time. It has been further shown in cases where a hernia developed from an alleged accident

that the claimant did not undertake any more hazardous work on the day the accident occurred than he was in the habit of performing on previous days.

It is a well established fact that certain regions of the body are more predisposed to hernia than others, especially those regions where the abdominal structures are less resistant. Such weak places, of course, are present in every individual, but much more pronounced in some than in others.

Statistics have shown that most cases of accidental hernia are of the inguinal variety. Considering the anatomic structures of the abdomen we find that the inguinal canal is one of the weakest spots. The wider it is and the straighter its course, the more readily will a hernia develop. Then again, there may be some peculiar inherited shape of the abdomen, extreme mobility of the peritoneum, insufficient fixation or ptosis of the viscera, frequent sudden increase of the abdominal pressure, and when there is marked predisposition, a very slight accidental cause may be sufficient to produce a hernia. On the other hand, there may be no predisposing factor whatever, but a combination of accidental causes may be followed by the development of a hernia. There is at present a considerable amount of discussion as to whether a hernia can appear in all its component parts.

The majority of authors believe this is an extremely rare occurrence, although it is not uncommon to have patients state that the condition appeared suddenly while at work.

David Ross, in his recent article on "Hernia in Infancy and Childhood," quotes a statement from Colel to the effect that "surgeons are becoming more and more convinced that a large percentage of hernia of adult life is due to a preformed sac which has existed since birth." (For an exposition of this theory see the book by R. W. Murray noted in our bibliography.)

H. A. Moffat, in a paper on "Hernia and the Workmen's Compensation Act" (see *South African Medical Record* for June 8, 1912), says that when claims for compensation are made the following points will be helpful in estimating the influence of the alleged strain or trauma:

1. The previous history of the patient as to hernia, chronic cough, etc., and also the result of previous examinations.
2. The circumstances of the accident; whether caused by ordinary effort and normal work.
3. The immediate sequelae—amount of pain, incapacity, swelling and the reduction of the swelling.
4. The character of the hernia itself. If traumatic and recent, it will be quite small as well as painful and tender. If a hernia reappears at once when the patient stands up, it is not of a recent origin;

further, if the sac is found thickened after operation, the hernia is an old one.

5. The existence of other hernias and the character of the abdominal wall in general. Hernia is frequently a multiple condition, and it is not uncommon to find an inguinal hernia on one side and a large external abdominal ring and relaxed canal with an impulse high in the canal on coughing on the other side.

6. The existence of marks left by wearing of truss.

If the Court judges the hernia to be an accident under the Workmen's Compensation Act, then two other points must be considered, namely, the amount of incapacity and the treatment.

There is a diversity of opinion among modern writers as to the production of a hernia. While some observers, as we have shown above, believe that traumatic hernia is sometimes caused by blows or falls, without any predisposing cause, other writers express the opposite view.

W. B. Outten, in his article on Railway Injuries, in Witthaus and Becker's *Medical Jurisprudence*, says:

Hernia in the great majority of instances is the product of muscular effort long continued, along with structural defect, and not the result of immediate and sudden effort. Hernia is always of slow formation, and very few persons are aware of its oncoming, because in its early stages it develops slowly and gradually and almost painlessly. The railway surgeon, who sees thousands of accidents where every form of intense and sudden muscular effort has been used, and records the history of these accidents, finds rupture as a complication so remarkably infrequent that he is forced to the conclusion that sudden muscular effort is never a cause of rupture. If rupture comes under these conditions, it is only acquired or inherited defects which have led to its manifestation.

R. W. Murray, in a recent book on the Cause and Treatment of Hernia, writes as follows with regard to the relation between accidents and hernia:

It is an interesting point whether, according to the performed sac theory, the sudden or gradual appearance of a hernia is an accident within the meaning of the Compensation Act.

It, of course, depends upon the definition of the word "accident," but even then the difficulty remains as to the exact time at which the hernia developed, for most hernias have a painless origin, and are frequently not noticed until the swelling has reached nearly to the scrotum.

I have frequently been told by the patient that an inguinal hernia, extending to the upper part of the scrotum, was due to a "strain" a week previously. As in these cases the men had continued with their work, and the swelling, not the pain, had directed their attention to the inguinal region, it was obviously a

mistaken observation on their part, for sudden stretching of the parietal peritoneum is invariably most painful.

In a large number of laboring men suffering from inguinal hernia who have come under my observation, I have made especial inquiry as to what it was they first noticed. In the majority of cases it was the swelling they first noticed, which appeared without causing any pain. In most cases it was attributed to a "strain."

So that, as a general rule, the formation of a hernia, that is, the stretching of a peritoneal diverticulum, is a gradual process, and a person first realizes that he is ruptured when he sees the swelling. In many cases, however, there has been some pain or a feeling of discomfort in the inguinal region.

The following is from the book by W. McA. Eccles on Hernia:

A person may bring a claim against an accident insurance office on account of his belief that a hernia which has developed is the outcome, more or less directly, of an accident of which he has been the subject. It then becomes the duty of the medical adviser of the office to determine whether or no the protrusion is in reality the result of the injury sustained, or whether it may not have been in existence prior to the accident.

In dealing with cases of this nature, it is important to remember that it is decidedly rare for a hernia to be formed suddenly, and the very fact that the applicant for compensation gives the history of a rapid development should in itself be a cause of suspicion. It cannot be denied that in some infrequent cases, parts of the abdominal wall may be torn by some severe strain, as for instance, in the effort to prevent the fall of a heavy piece of furniture; but in these persons there is a definite "rupture," in all probability, of the parietal peritoneum. This is followed by an escape of the viscera into the extra-peritoneal tissue, or if the transversalis fascia and some of the superjacent muscular layers have also given away, the protrusion may pass into the subcutaneous tissues. Occasionally, if bowel has been so protruded, it has become at once strangulated, and an operation has been immediately called for. But this condition of affairs is very uncommon, and need hardly come into the category.

Further, it must be borne in mind that a person who has a patent processus vaginalis may, on account of a great effort, suffer the escape of viscera into the ready-formed sac, where it may become at once strangulated. In both the above conditions, provided that the medical examiner can satisfy himself that the strain was the direct precursor, and therefore, probably the producer, of the hernia, he is justified in allowing the claim, but it is necessary to repeat that such cases are rare.

On the other hand a person may aver that he has developed a protrusion, not suddenly but at a period which is remote from the date of the accident, believing it to have been caused by it. In such a case

the position of the hernia should be of considerable service in arriving at a decision whether or not it has any connection with the accident. *If it is in one of the usual positions for a protrusion, the inguinal, femoral or umbilical regions, it is highly probable that the accident had little or no part in its causation,* while if it is in an unlikely spot, as, for instance, in the lineae semilunares or alba, it is allowable to grant that the injury did participate in its production. Again, if the applicant has lax abdominal walls, or presents a hernia elsewhere than the one asserted to be the outcome of the strain, then his claim can hardly be upheld.

In my opinion, the formation of a hernia is brought about in much the same manner as that of a normal labor. Passing through the different stages:

1. Formation of funnel shape process of peritoneum at internal ring—Bag of waters.
2. Visceral contents—Fetus.
3. Internal abdominal pressure, persistent coughing, straining at stool—Uterine contractions.

These extending over a varying period of time, associated with the above we have to consider:

1. Inherited predisposition; 2. Congenital defects; 3. Mode of living.

I have taken the liberty of incorporating into my paper the ruling of the Nevada Industrial Commission dated September 26, 1913, on the subject of hernia.

Medical science teaches and has taught for the past twenty years, that which is now accepted as a medical and scientific fact, corroborated as such by the foremost surgeons and anatomists of the world, that is, that hernia (or so-called rupture) is a disease ordinarily developing gradually, and which is very rarely the result of an accident.

With the object of treating the subject of hernia justly to both employer and employee, and in accordance with medical and scientific teachings and facts, the commission rules as follows:

Rule 1. Real traumatic hernia is an injury to the abdominal (belly) wall of sufficient severity to puncture or tear asunder said wall, and permit the exposure or protruding of the abdominal viscera or some part thereof. Such an injury will be compensated as a temporary, total disability, and as a partial, permanent disability depending upon the lessening of the injured individual's earning capacity.

Rule 2. All other hernias, whenever occurring or discovered, and whatsoever the cause, except as under Rule 1, are considered to be diseases causing incapacitating conditions or permanent, partial disability. But the permanent partial disability and the

causes of such are considered to be as shown by medical facts—to have either existed from birth; to have been years in formation and duration, or both, and are not compensatory except as provided under Rule 3.

Rule 3. All cases, coming under Rule 2, in which it can be conclusively proven; 1, that the immediate cause, which calls attention to the presence of the hernia, was a sudden effort or severe strain or blow received while in the course of employment; 2, that the descent of the hernia occurred immediately following the cause; 3, that the cause was accompanied, or immediately followed, by severe pain in the hernial region; 4, that the above facts were of such severity that the same were noticed by the claimant and communicated immediately to one or more persons are considered to be aggravations of previous ailments, or diseases, and will be compensated as such for time loss, and to a limited extent only, depending upon the nature of the proofs submitted, and the result of local medical examination.

The foregoing is stated to follow rulings in Ohio and Washington. The matter is important, as under the English law there has been the greatest difficulty over this subject.

Oct. 22, 1913.

F. T. SHERMAN.

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Surgeon Central Manufacturing District,
1118 West Thirty-fifth Street.

FOOT AILMENTS.*

With Special Reference to Correction of Relaxed
Arches by Means Other Than Foot Props.

F. S. LOWER, M. D.

CHICAGO, ILL.

Practice Limited to Surgery of the Feet.

It is to a small group of foot ailments wherein the principal symptoms are pain and slight deformity, I am calling your attention this evening, as these cases are often seen first by the family physician, and because the etiology and pathology of these conditions have not been well understood, the treatment has often been vague and inefficient, not to say indifferent.

Usually the patients give a history of having been treated for rheumatism or being directed to buy a pair of arch supports or props.

As Dr. John L. Porter says, "Pain and rheumatism have, in the past, been so generally treated as synonymous, at least where joints were concerned, and our pathological conception of rheumatism has been so hazy that the term has been a very convenient one to use when we did not know what the matter was; but with our better knowledge of joint disease and of the pathology of true rheumatism, it is time to realize that so far as painful feet are concerned the chances are 95 to 5 against that being the actual trouble."

For some reason unknown to me, both the medical profession and the laity have appeared to consider any affection of the feet, less than a fracture or dislocation, of so minor importance as to be unworthy of serious consideration or careful examination and treatment.

I think if you will pause and reflect for a moment what our feet mean to us, you will agree that they are a very important portion of our anatomy and as deserving of respectful consideration as, for instance, our aristocratic appendices. Our very dependence upon our feet in getting about our daily occupations lends added importance to affections of those extremities.

We can suffer a great deal of pain and disability in the hands and other portions of the body without being incapacitated, but when one's feet are out of commission he is "down and out" in every sense of the word.

I cannot too strongly emphasize the importance

of carefully examining every case *physically* as well as subjectively.

Simply to listen to a patient's history of chronic pain in his feet, steadily increasing and with more or less disability, and then to tell him he has rheumatism and proceed to fill him up with salicylates, sending him on his way without even examining him or his feet, is surely a travesty on the practice of medicine, but an altogether too common one.*

Some toxicemic or infectious process may be responsible for the weakening and giving way of the tissues which support the joints or the relaxing of the muscles designed to maintain and manipulate the arrangement of arches and levers of the foot so constructed as normally to receive and sustain the weight of the body and assist the muscles of the leg in locomotion; but this toxemia is due to some infectious or suppurative process and not necessarily rheumatism.

The point I am endeavoring to make is that pain in the feet may be due to various causes and is important enough to warrant your careful examination and investigation.

The foot is an ingenious arrangement of arches, levers and joints and anything that interferes with their proper functioning renders locomotion awkward, difficult and usually painful. Prominent among the causes of painful feet is the wearing of shoes that subject the feet to constant strain by compelling them to support the body weight in an unnatural manner—shoes so balanced that as the weight is transmitted from heel to toes in the act of walking, it is thrown to the inside of the foot instead of the outside.

In the natural gait the great toe points directly forward or slightly "toed in" (watch your *moccasined* Indian guide), and the weight is transmitted from the os calcis outward and forward in a circular direction to the toes and the finish of the step is given by the five toes successively grasping the ground or shoe. The arches of the foot both longitudinal and transverse are thus quickly relieved of the dead weight of the body and give an elastic springiness to the step, which is their normal function.

When the foot is confined in a shoe which is so balanced as to render this gait impossible, the weight is thrown inward from the heel, strain is put on the longitudinal arch, the toes point outward (Valgus shoes), which soon produces pain and weak feet and it is only a step from weak feet to flat feet and another step to rigidity

*Read before the North Shore Branch, Chicago Medical Society, December 1, 1914.

*Porter: Chicago Medical Recorder, February, 1911.

and then all elasticity is gone, the patient being about as agile as a man on stilts. Also the sharply pointed, high heeled, narrow shanked shoes, at the present so much in vogue in ladies' shoes, cause great strain to be thrown on the transverse (anterior) arch, causing a flattening which is often accompanied by an excruciating spasmodic pain known as Morton's metatarsalgia. This occurs usually in women, as they are as a rule more willing than men to suffer for so-called "style." Women patients afflicted with this ailment have often told me the pain would come on suddenly when frequently there was no weight being borne by the feet; at the theatre for instance. The pain would be so intense and cramplike they would be obliged to remove the shoe at once and massage the foot, which would relieve it.

This is the one condition wherein I believe a metal prop or insole is indicated. An aluminum or German silver insole properly fitted, with a slight elevation behind the heads of the third and fourth metatarsal bones, will almost immediately relieve and eventually cure this painful condition. To make certain of this before putting the patient to the expense of having this plate made, it has been my custom to fashion a graduated pad of piano felt and place it in the position to be occupied by the contemplated metal elevation. This is strapped to the foot with adhesive plaster and worn for a few days. If the patient experiences the relief I anticipate I then order the plate made.

It might be pertinent, as we are on the subject of ailments of the feet due to mechanical cause, to mention hallux valgus, or bunion, as the predisposing cause is the initial distortion of the great toe, nearly always due to ill-fitting shoes; but associated with this distortion—at least in severe cases—is nearly always a gouty or rheumatoid arthritis, which contributes with malposition of the toe and trauma inflicted by the shoe, to produce the bony enlargement and inflammatory articular changes that take place. The deformity is readily and permanently reduced by a radical surgical operation but by no other means and the patient must ever after wear straight lasted shoes which make no pressure on the great toe. So few patients will either take the time or spend the money to have this operation performed that I usually fit the joint with

a vulcanized rubber pad, fashioned over a plaster of paris model of the part, that gives immediate and generally permanent relief and hides the deformity (unless unusual), when worn under a straight lasted shoe.

The next group is comprised of those cases due to acute infections, of which gonorrhea is probably the most common. They are usually referred to simply as "gonorrheal feet" rather than "gonorrheal *flat feet*" or gonorrheal arthritis, although most gonorrheal feet become flat if not treated and there are cases in which a true arthritis develops and accounts for part of the pain; but the changes that occur in gonorrheal feet are periosteal and peri-articular, rather than intra-articular. There is a peculiar thickening of all the peri-articular tissues; the foot looks and feels "boggy" and there is a general sensitiveness of the entire foot. The patient experiences practically no pain while at rest but walking or standing is sometimes almost impossible.

The periosteum seems to be infiltrated, especially that of the os calcis, and manipulation of the heel, especially pressure on the tuberosity on the bottom of the os calcis, is extremely painful and the continued irritation of the inflamed periosteum causes exostoses (spurs) to develop later at the insertions of the plantar fasciae on the bottom of the heel. The prolonged infiltration results in a relaxation of the supporting tissues of the arches of the foot and if walking is persisted in, flat foot is nearly certain to result.

Any of the acute infections and debilitating diseases, diphtheria, scarlatina, influenza and typhoid, may result in a relaxation and loss of tonicity of the muscles and tissues supporting the arches. The patient usually gives a history of a gradually increasing amount of pain in his feet for some weeks; can stand for but a short time without being extremely fatigued; has tried various shapes and styles of shoes and has bought many "arch supporters" that he cannot tolerate and has concluded that he has rheumatism. Examination of the feet reveals nothing of note. When he stands the feet are somewhat pronated and flattened, he toes out quite markedly, the astragalus is prominent and deep pressure discovers tender spots, usually around the scaphoid. The evidence is mostly subjective and is principally pain. The joints proper seem to be free of involvement.

Now, it is to the treatment of these cases in this particular stage that I have been pointing this brief dissertation. The object is to give these feet the most comfortable support possible. These feet are entirely too sensitive to tolerate any hard and unyielding prop. My practice is to slightly over correct (supinate) and apply an adhesive plaster and collodion cast to retain the foot in position of inversion, adduction and dorsal flexion.

I use strips of adhesive plaster about one inch wide and twelve inches long; start the first strap a little above the external malleolus, around the bottom and up the inner side of the foot and extending diagonally across the ankle and up the outer side of the leg. The next strap follows the course of the first, overlapping it about one-eighth of an inch and this is followed by about four more, making five or six straps in all. A thin layer of cotton on the plantar surface of the foot under the plaster, will prevent the skin irritation that sometimes results from the strapping. The plaster is now covered with collodion, which renders it practically waterproof and prevents the gum of the plaster sticking to the stocking. This dressing holds the foot in certainly a better position than any metal prop or arch supporter and is *comfortable* to the patient and instead of putting in days of torture "getting used" to a metal prop, there is a perceptible relief at once.

This cast is left on for several days, then removed and the foot manipulated, giving about five minutes passive exercise; inversion, adduction, and dorsal flexion. Then another strapping of the same kind, leaving it on a little longer this time and gradually extending the intervals between reapplying the casts.

When perfect flexibility has been obtained, the strapping may be discontinued but a cure has by no means been accomplished until the patient not only can but does use the foot *at all times* in the physiological way.

Proper shoes with the Thomas heel, which extends forward $\frac{3}{4}$ of an inch further on the inner than on the outer side, so that secure support as far forward as the astraglo-scaphoid joint maintains adduction more securely. Adhesive plaster strapping as above described may be applied until the patient becomes accustomed to the new posi-

tion; until the muscular sense has become re-educated.

Exercises: The object of these is to strengthen the muscles and ligaments. There are many athletic sports which will do all the exercising necessary, at least in the mild cases, and for young people they will be found a much more welcome prescription than definite foot exercises to be carried out in the bed chamber. As such may be mentioned tennis, hand ball, volley ball, etc., in fact any game that necessitates springing about on the toes. Roller skating is injurious as the feet are abducted. Dancing is very beneficial for weak foot.

Specific exercises will, however, frequently have to be ordered. Here are four sets which will be very useful in most cases.

1. With the feet forming sides of a square, toes straight ahead, slowly raising one's self upon the toes and slowly returning to the heels.

2. Walking about the room on the outer borders of the feet.

3. Using the toes to pick up articles.

4. Strongly separating the toes.

In the first exercise, care should be taken that the feet are in proper position, parallel and forming the sides of a square. The exercise must be taken very slowly, so that no help is given to the muscles by a swinging motion of the body or by allowing gravity to assist in returning the heels to the floor. It will be found of great help in obtaining a cure, if the patient forms the habit of rising on the toes while the shoes are on. This will not take the place of the exercise done barefooted, but if the patient is instructed never to stand for more than a minute or two without rising on the toes and to rest occasionally on the outer border of the shoes, it will give a valuable rest to the ligaments.

A most valuable exercise, which cannot be done, however, without assistance, is rotation of the forefoot. The patient is seated with one leg resting on the assistant's knee. The assistant holds the heel securely in one hand, pointing the index finger of the other hand with its tip just in front of, and dorsal to, the second toe; the patient moves the forefoot, first in adduction and then through flexion, abduction and extension, in such a way as to carry the forefoot in circumduction around the assistant's finger, which is held steadily in one position. The ex-

ercises for the toes are directed toward increasing the strength of the smaller muscles and thereby strengthening the anterior arch, which will generally be weakened with the longitudinal arch. When sitting, patients with tendency to abduction and eversion, should cross the legs and rest the feet on the outer border, which will rest *all* the foot structures. The patient should also be instructed to practice walking at all times with the toes pointed straight ahead rather than turned out like the arms of a "Y."[†]

To recapitulate:

1. Foot ailments are *not* trivial affairs, but require and merit your careful examination and treatment.

2. Adhesive plaster strapping and intelligently directed exercises are more efficacious and decidedly more comfortable to the patient than metal props or so-called "Arch Supporters."

I wish to thank Drs. Porter and Nutt for the valuable information I have obtained from their writings and have so freely quoted in this article.

SUITE 905, MARSHALL FIELD BLDG.

EXTRA-UTERINE PREGNANCY.*

ANDY HALL, M. D.,
MT. VERNON, ILL.

An extra-uterine pregnancy is one of the most serious pathological conditions that can befall a woman. Unless a diagnosis is made reasonably early and operative measures be promptly taken, a great majority of these patients will die. But an early diagnosis and prompt treatment should not give a mortality greater than 5 per cent.

If there is any one who should be interested in this subject it is the man doing general practice, the family physician, the man who does the obstetrical work. It is the family physician who is consulted by the pregnant woman if she consults any one, and it is he that is called in practically every emergency. It is on his ability to make a diagnosis and advise or institute prompt treatment that the lives of these patients depend. It is not the surgeon that is primarily called to these cases; if he is consulted at all, it is usually after the family physician has made a diagnosis and has suggested operative measures.

If there be any of you who have practiced obstetrics for many years without ever encountering a case of extra-uterine pregnancy, you have been fortunate indeed. If you have reached the conclusion that this condition is a myth, or as our distinguished president would say a "psychological" condition, rest assured that you will have a rude awakening some day if you continue to do obstetrics. If you are hurriedly called to the bedside of a married lady, who has perhaps missed one period and has been suddenly seized with severe pain low down in one side of the pelvis, find her pulse rapid and thready, skin cold and clammy, nauseated, suffering with dyspnea, acute anemia, find a normal or subnormal temperature, and should her condition go from bad to worse and should she enter the pearly gates within the next twelve, twenty-four or forty-eight hours, it will probably occur to you that you have had at least one case of extra-uterine pregnancy with a ruptured tube and death from internal hemorrhage.

By the term extra-uterine pregnancy we mean the arrest and implantation of the impregnated ovum outside of the uterus. This may occur at any point in the tube from the fimbriated extremity to its termination into the uterine cavity. A few cases are on record of ovarian pregnancy, but they are very rare. If the arrest occurs as the tube passes through the muscular walls of the uterus, it is termed an interstitial pregnancy. The abdominal pregnancies are supposed to have all been primarily tubal. But the rupture of the tube or the expulsion from the fimbriated end has allowed the impregnated ovum to escape and it becomes attached to other tissues and continues to grow. There are a few cases on record where they have survived to full term. Personally, I have never seen such a case.

Practically, all cases are tubal and the rupture, attended with severe pain, acute anemia, dyspnea, and shock, occur from the fifth² to the eighth week; seldom later than the twelfth week. Occasionally a rupture will occur prior to the fourth week in a woman who has not even suspected pregnancy. These early ruptures are most difficult to diagnose and are equally dangerous.

As to the cause of ectopic pregnancy, investigators are not agreed. But the consensus of opinion is that it occurs in women who have suf-

[†]Nutt—Diseases and Deformities of the Foot.

*Read before the Southern Illinois Medical Association, Nov. 6, 1914.

fered from some inflammatory condition of the pelvic tissues which has resulted in a stenosis of the tube which does not allow the ovum to pass into the uterus but does permit the spermatozoa to pass into the tube. Some claim that it follows a salpingitis in which the ciliated epithelium has been destroyed, thereby allowing the spermatozoa to ascend into the tube.

Many of these cases occur in women giving a history of sterility covering many years. In one of our cases the lady had been married ten years and this was her first pregnancy. In another the lady had given birth to a child twelve years before and this was her first pregnancy since. But in many of these cases no history of any pathological condition is present.

Just how frequent ectopic pregnancy occurs is not positively known. In 1888 Lorenze³ estimated one case in every four or five hundred thousand pregnancies. But in recent years, with our more careful methods of making diagnosis and the impunity with which the abdomen is opened to clear up suspected or doubtful pathological conditions, we know that an extra-uterine occurs at least once in every five hundred pregnancies.⁴ This estimate is probably too low; for as one writer puts it, "There are many cases in which the disease is never suspected, for the fetus dies and is, so to speak, entombed."⁵ There are other cases in which the patient dies and no autopsy is made to clear up the cause of death.

In 1889 Dr. Henry F. Formand, in his capacity as coroners physician in Philadelphia stated that in six years he had made 22 autopsies of women who had suddenly died of ectopic gestation. "All these cases were tubal, and in all the fatal rupture occurred from the fourth to the eighth week of pregnancy. Death happened in all cases, save one, within twelve hours, and in that case it was delayed five days."

The diagnosis of an extra-uterine pregnancy is of vital importance; and we should always bear this condition in mind when we have occasion to examine a woman of child bearing age, suffering from any pelvic disturbance. Unfortunately, but few pregnant women submit to a physical examination until they are in labor, or until they are suffering from the effects of some pathological condition that should have been discovered and given timely treatment weeks and perhaps months

before. I think we should educate the women in the importance of having a physical examination made soon after a supposed pregnancy and again before confinement.

A diagnosis of an extra-uterine pregnancy before rupture is not usually a difficult matter. The principal points are a cessation of the menstrual flow at least one time, then a return of the flow at perhaps the next period and re-occurring at frequent irregular periods that may continue for weeks and months. Often the patient may tell you that they suspect an abortion. Often a complete cast of the interior of the uterus will be thrown off. If this proves to be a decidua, and you also have a pelvic tumor, you can be positive that you have an extra-uterine pregnancy.

In one of our cases the diagnosis was confirmed in this way: If an extra-uterine persists you will have other signs of pregnancy, such as nausea, discolored breasts, later milk in breasts, and rapid enlargement of abdomen. Besides the ordinary signs of pregnancy the woman will often complain of distress and tenderness to one side of the uterus. If examined early a tumor will be found to one side of an empty uterus; but later the tumor may fill the entire pelvis. The uterus is usually enlarged to some extent and the cervix is soft.

Unfortunately we are seldom called to see these patients until a rupture has occurred. Then in addition to the history of a probable pregnancy, you have the sudden onset of excruciating, tearing pain, low down in the pelvis to one side. If there has been much loss of blood you have symptoms of an internal hemorrhage, acute anemia, rapid thready pulse, cold clammy skin, and dyspnea. The temperature will be found normal or sub-normal. If reaction takes place there may be a slight elevation of temperature later. A physical examination at this time will reveal a boggy mass in 'Douglas' cul-de-sac and a sensitive tumor in one side of the pelvis. The uterus will be found slightly enlarged and the cervix soft. After a rupture, the pelvic abdomen is tender and rigid.

Should the hemorrhage be slight, reaction may follow and the clots be gradually absorbed. Should the fetus be small it may become encysted, or form a tubal mole and cause but little trouble. But if the hemorrhage be extensive and the patient does not die at once, she usually succumbs

in a few days or weeks to a peritonitis. Not a few of these neglected cases become infected and result in an abscess in Douglas' cul-de-sac.

The cases most difficult to diagnose are those in which a rupture occurs early before any symptoms or history of a probable pregnancy. The early rupture does not necessarily lessen the mortality of these cases and many terminate fatally within a few hours. Howard Kelley⁶ reports a patient in his practice who, without missing a menstrual period, was taken with violent pains, interpreted as colic from indigestion, and bled to death in two days. An autopsy revealed a mass not larger than a bean.

Douglas⁷ reports two cases of unusual interest. A nullipara aged 21 years, perfectly well and disclaiming any probability of pregnancy, was

two cases of extra-uterine pregnancy in which rupture occurred prior to the fourth week. Neither patient had missed a period or suspected pregnancy. Both were operated on and both recovered. One of these patients after indulging in sexual intercourse was suddenly seized with severe pain low down on the right side of pelvis. When seen a few hours later she had all the symptoms of an internal hemorrhage, plus tenderness and severe pain in pelvis, and a boggy mass in Douglas' cul-de-sac. When the abdomen was opened it was found to be filled with fluid blood and the pelvis contained much clotted blood. The hemorrhage was coming from the fimbriated end of the right tube from which a small mass had been expelled. She was operated on July 4,

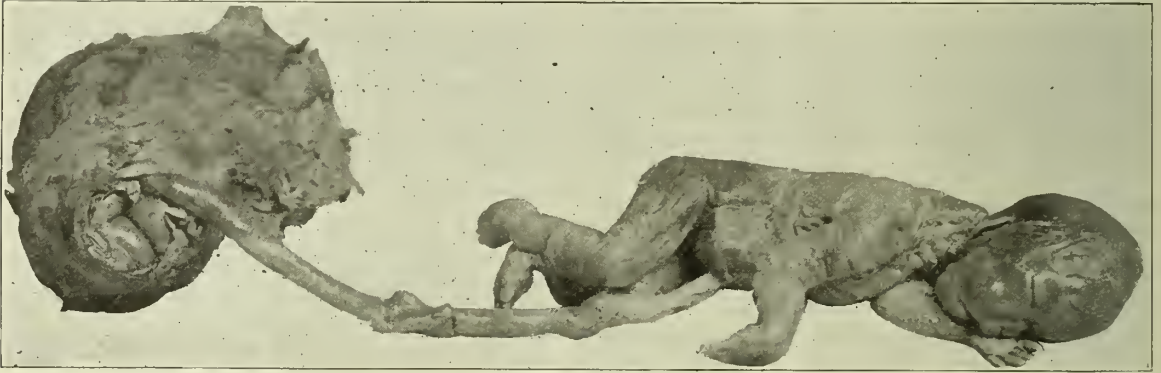


Fig. 1. Fetus and Placenta From Mrs. F.

brought to his office in a collapsed condition, having fainted a few moments before while shopping in an adjacent store. Dr. Owen Wilson, a senior medical student, made the diagnosis of intra-peritoneal hemorrhage from an ectopic pregnancy. When Douglas saw her she was in hopeless collapse and died one hour later, two hours from the onset of symptoms. The circumstances were so peculiar that the coroner ordered an autopsy. An ampullary pregnancy of three weeks duration was found, with an immense quantity of blood in the abdomen. In his second case he recognized an intraperitoneal rupture and urged an operation, but it was refused; in six hours from the onset of the symptoms the patient was dead. From the examination of the specimen and from all obtainable facts he inferred that the pregnancy could not have been of more than four weeks duration.

During the month of July of this year, I saw

and left the hospital July 19, having made an uneventful recovery.

While most of these cases rupture prior to the eighth week and seldom go longer than the twelfth week, a few are on record in which the tube did not rupture until after the sixteenth week. In this connection I wish to report the following case:

May 6 Mrs. F., aged 27 years, the mother of one child 4 years of age, was referred to me by Dr. Geo. Cremeens. Aside from a normal confinement four years previously, she had been in perfect health until her present trouble begun. She had menstruated regularly up to Jan. 1; she missed in February, but about the first of March had severe cramps and slight flow. Slight flow continued to return at irregular intervals. Once or twice she had been in so much distress that a physician was called, and he administered a sedative. At that time the physician found tenderness and an undue fullness in the lower abdomen. She also gave a history of nausea and vomiting. Present examination showed pulse 110 and

temperature 99.2 The breasts were discolored and enlarged. Vaginal examination revealed a tumor that filled the entire pelvis, having the consistency of a pregnant uterus. The cervix was rather soft and felt that by a little effort the finger could be introduced. Posteriorly and to the right of the cervix was a mass that felt rather hard and firm. Inspection and palpation showed a tumor almost symmetrical filling the lower abdomen. It extended to within two inches of the umbilicus, but from the upper left-hand side was a mass that extended four inches higher than the main body of the tumor. This extended mass or projection was firmly connected to the main body of the tumor and appeared to be a continuation of it. The tumor was not very sensitive and we could slip the fingers under the projecting mass and rock the entire tumor without any evidence of discomfort.

While we were unable to hear any fetal heart sounds, our diagnosis was a pregnancy in a fibroid uterus. She remained in the hospital four days and returned to her home, refusing an operation.

Eight days later she returned, stating that she had suffered some distress the day before and had decided to submit to an operation. Her condition was about as before, except that the projecting mass from the upper left side of the tumor had disappeared, leaving it practically symmetrical. Nowhere could this missing mass be found. The disappearance of this supposed fibroid knocked a part of our previous diagnosis in the head. However, we believed that she had a surgical condition present and decided to make an exploratory operation.

Operation May 21, median line incision. Found omentum and intestines adherent to tumor. Careful dissection exposed the tumor in the upper left portion, of which we found a rent from which an umbilical cord was hanging. Following this cord upward to right side under liver we found a fetus anchored. The fetus was nine inches long and the cord was fourteen inches long. The intestines and omentum were firmly adherent to the fetus, indicating that it had lived for some time after its escape into the abdomen. The tumor from which it escaped proved to be the left tube, which was removed with the placenta intact. (See Fig. 1.)

The patient made an uneventful recovery and was able to leave the hospital for her home June 3, fourteen days following the operation. She has been in perfect health ever since.

The points of unusual interest in this case are:

1. Late period of rupture; about twenty weeks.
2. Absence of loss of blood at time of rupture; no blood or evidence of hemorrhage was found when abdomen was opened.
3. Absence of severe pain and shock at time of rupture; she was able to ride forty miles in a day coach and walked up stairs into the operat-

ing room without complaining of any discomfort.

4. Last and most important, her rapid recovery after so serious an operation.

In closing this paper I wish to emphasize the following points:

a. Extra-uterine pregnancy is a frequent occurrence.

b. An early diagnosis is of vital importance; a rupture usually occurs from the fourth to the eighth week.

c. When once a diagnosis is made before or after rupture, no expectant or temporizing measures should be considered, for that spells death in a great majority of cases. But prompt, timely, surgical treatment before a rupture has occurred should give no mortality, and prompt surgical treatment after a rupture will save a great majority of these cases.

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IMPORTANT ANATOMIC AND PHYSIOLOGIC FACTORS IN SUBARACHNOID MEDICATION.*

HARRIS E. SANTEE, A. M., M. D., Ph. D.

Professor of Anatomy in Jenner Medical College and of Nervous Anatomy in Chicago College of Medicine and Surgery.

CHICAGO, ILL.

The region best adapted for introducing subarachnoid medication is the third or fourth lumbar space between the arches of the vertebrae. This location is uniformly agreed upon by physicians of Europe and America for many reasons:

The arches of the lower lumbar vertebrae are not imbricated as they are above that level; they are separated by a distance of 6 mm. or more, and that distance can be greatly increased by forward flexion of the vertebral column. The ligamenta flava, which connect adjacent arches together, being composed of yellow elastic tissue, are very extensible. However, the strong supraspinous and interspinous ligaments of the lumbar region impose a reasonable limit to the separation of the vertebral arches. Besides ease

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of access to the subarachnoid cavity through the third or fourth lumbar space, the dura mater is said to be more firmly anchored to the vertebrae here than elsewhere and, therefore, is more readily punctured in this location.

The subarachnoid space is large in the lumbar region. It contains the cauda equina, the spinal cord and a considerable amount of fluid, which holds the very delicate arachnoid against the dura mater. In the adult the cord reaches down to the first lumbar space, but it may reach the third lumbar space in the newborn. Hence, the fourth lumbar space is to be preferred in a young child.

A low puncture of the subarachnoid space, also, enables the surgeon more readily to make use of gravity to obtain a free discharge of cerebrospinal fluid.

To locate the fourth lumbar space, draw a line between the highest points of the iliac crests when the vertebral column is flexed sharply forward. This line will cross the spine of the fourth lumbar vertebra. As a control, count the spines upward, the fifth lumbar spine being prominent in this position of forward flexion. The spinous processes of the lumbar vertebrae are thick quadrilateral plates, with nearly horizontal superior and inferior borders, and a bulbous and slightly pendent dorsal border. They are joined together by strong supraspinous and interspinous ligaments. To avoid both these ligaments and the spinous processes which they connect, the needle should be introduced 6-10 mm. from the median line and directed slightly upward and median-ward. The distance to the subarachnoid space varies greatly, from 2-7 cm. It must be estimated by the operator and the needle controlled by the resistance of the tissues.

The object of subarachnoid medication is to get closer to the tissues to be affected by the treatment.

It is a well known fact, first pointed out by Bevan Lewis, that the body of every nerve cell is surrounded by a lymph space. This is also true of the bodies, of neuroglia cells. Because of this, the blood stream can get no nearer to the body of a neurone than this pericellular lymph space and a capillary wall will permit. The pericellular spaces are continuous, on the one hand, with the freely communicating canals of Holmgren inside of the cell-body, by means of which nutriment is carried to the neurone

and waste products are borne away from it; and, on the other hand, the pericellular spaces open into the subarachnoid space by way of perivascular and perineural channels. To affect the neurones, therefore, a substance must gain entrance into the so-called lymph channels.

There is some evidence showing that many substances do not pass from the blood into the cerebrospinal fluid with facility. This is generally true, according to F. W. Mott,¹ of all drugs and bacterial toxins. Swift and Ellis² claim that potassium iodide given by mouth or intravenously does not appear in the cerebrospinal fluid. A few centigrams of potassium ferrocyanide injected into the cerebrospinal fluid of a rabbit produced toxic symptoms, in the experiments of Lewandowsky; while 4-6 grams in the jugular vein caused no symptoms. Behring injected tetanus toxin into the veins of hens without effect, but induced typical tetanus and death by introducing it into the cerebrospinal fluid.

The late Prof. Edwin E. Goldmann of Berlin discovered that the cells of the chorioid plexuses stand guard over the cerebrospinal fluid and keep noxious substances out of it. He injected trypan- and isamin-blue into the blood, and afterward found the chorioid plexuses loaded with color; but found none in the cerebrospinal fluid or in the brain and cord. He lays great stress upon the large granular cells of the chorioid plexuses as protectors of the nerve tissues. If then the chorioid plexuses tend to keep all noxious substances out of the cerebrospinal fluid, it would seem desirable, in order to get quick and powerful effect on the nerve tissues and their contents, to throw the medicinal substance directly into the subarachnoid space. This procedure was successfully carried out in the treatment of nervous syphilis by Swift and Ellis of the Rockefeller Institute in 1912. Wechselsmann and Marinesco obtained such direful results from salvarsan injected into the subarachnoid cavity that Swift and Ellis, after confirming that unfavorable experience by animal experimentation, devised a method for using the patient's own salvarsanized serum. Once in the cerebrospinal fluid, the salvarsanized serum or other substance might be expected to spread by diffusion to all parts of the brain and cord and there produce the

alterative and germicidal effects of which it is capable.

But there are some factors to be considered before drawing a general conclusion.

Prof. Edwin E. Goldmann⁴ found, when he injected trypan- and isamin-blue into the spinal subarachnoid space, that the spinal cord, the brain-stem, and the optic nerves were stained; but the cerebellum, the cerebral hemispheres and the cranial nerve roots, other than the optic, contained no color. When the injection was made into the cranial subarachnoid space the cerebellum and cerebral hemispheres were affected. From which, we must infer that a medicament introduced by lumbar puncture would not readily affect conditions in the cerebral hemispheres or cerebellum. But it is claimed that brain syphilis is usually located between the cerebral peduncles and the optic chiasma. Such cases, of course, are amenable to this method. The amount of benefit to be expected can better be predicted after considering the source and flow of the cerebrospinal fluid.

At present it is the consensus of opinion that the cerebrospinal fluid is a true secretion formed by the chorioid plexuses, which F. W. Mott, four years ago, named the "chorioid glands." This "secretory hypothesis" was first advanced by Faivre, in the *Annals of the Sciences* in 1854. It was supported by Luschka, whose name has been given to a pair of foramina in the roof of the fourth ventricle, two years after the article by Faivre. Many writers, since, concur with this view. Pittit and Girard, in a monograph published in 1902, find proof of the hypothesis in many vertebrates besides man.

Evidence for the secretory hypothesis of Faivre.

1. That cerebrospinal fluid is not a mere exudate from the blood vessels and, therefore, is nothing other than lymph, is shown by its character. It is more like tears and sweat than lymph. It lacks the corpuscle content of lymph; it has only half the alkalinity of lymph, it has no fibrinogen at all and only a mere trace of any protein, and it has from 3-11 per cent. more CO_2 than is contained in lymph. Cerebrospinal fluid contains small amounts of sodium chloride, carbonates, phosphates, urea, 53-61 per cent. of CO_2 , a trace of globulin, glucose, and, when drawn by lumbar puncture, a few lymphocytes.

Its specific gravity is 1006-1008. Hence we must conclude that it is not an exudate of ordinary lymph.

2. The glandular structure of the chorioid plexuses of lateral, third and fourth ventricles merits consideration. This characteristic of the chorioids was noticed as far back as 1664 by Willis. Many investigators have strongly emphasized the fact, especially since the work of Faivre and Luschka, published near the middle of the last century. F. W. Mott made a careful study of the "chorioid glands" and published his findings in the London *Lancet* July 2 and 9, 1910. He found the chorioid plexuses made up of tufts of blood vessels surrounded by loose connective tissue on which stands a single row of large granular epithelial cells, cubical, spheroidal or polyhedral in form. Many nerve fibers are found around the arterics and in the connective tissue, forming plexuses whose terminal fibrils end among the epithelial cells. The gland is formed by an invagination of ependyma followed by a tuft of vessels from the pia mater. Mott compares the structure to the lachrymal gland. There is surely a very plain resemblance to the glomerulus and surrounding epithelium of a renal corpuscle. Mott classifies the chorioids as intermediate glands, having an external secretion with an internal destination.

Again, the extract prepared from chorioid plexuses greatly stimulates the flow of cerebrospinal fluid, when injected into a vein. A number of other substances are also secretory stimulants, but not to the same extent. They are such drugs as chloroform, ether, chloral hydrate, urethane, diacetin, alcohol, CO_2 , cholesterin, etc. The chorioid extract probably contains a specific hormone, a product of brain metabolism, which, because the chorioid cells will not permit it to pass, accumulates in the plexuses and stimulates their activity. Roy and Sherrington discovered in 1890 that an extract of the brain substance stimulates the flow of cerebrospinal fluid. The normal fluid is not a stimulant; but cerebrospinal fluid obtained from cases of general paralysis and brain softening stimulates like the brain extract. (*Jour. Physiol.*, 1890.)

The cerebrospinal fluid fills the ventricles first and overflows into the subarachnoid space through the median and lateral apertures of the

fourth ventricle. This imposes a limit to its possible sources.

The fact that the cerebrospinal fluid first enters the brain ventricles and thence flows out into the subarachnoid space is indicated by the following findings: When the ventricular outlets are occluded, viz., the median aperture of Magendie and the lateral apertures of Luschka, or Key and Retzius, in the roof of the fourth ventricle, the result is internal hydrocephalus, which could not be so if the fluid were formed outside the brain. If then the cerebrospinal fluid is not an exudate but a secretion and is found primarily within the brain, especially within the ventricles bathing the gland-like chorioid plexuses, it seems very probable that those chorioid glands secrete it and pour it into the ventricles. The largest chorioid plexus is that of the lateral ventricle, the glomus chorioideum being quite massive. According to the secretory hypothesis, therefore, these two chorioid plexuses should secrete the larger portion of cerebrospinal fluid. If most of the fluid is formed in the lateral ventricles, it must flow largely by way of the interventricular foramina of Monro, the third ventricle, the cerebral aqueduct and the fourth ventricle into the subarachnoid space; and any obstruction in the third ventricle will produce increase of intracranial pressure and, if continued, internal hydrocephalus of the cerebral hemispheres. Such cases are on record. Mott gives an interesting case of intermittent increase of pressure within the cranium presenting many attacks of sudden drowsiness, headache, convulsion and recovery; and, after some time, gradual loss of memory, failure of comprehension, etc. Post mortem revealed a pendent polyp hanging from the roof of the third ventricle, which easily swung back like a valve and closed the cerebral aqueduct.

From the evidence at hand the most reasonable conclusion is that the cerebrospinal fluid is secreted by the chorioid glands. Filling the ventricles, it overflows into the subarachnoid spaces. By way of a canalicular system composed of the pericellular spaces in the brain and cord and the perivascular channels which connect them with the subarachnoid space, the cerebrospinal fluid comes into direct contact with the bodies of the neurones. Robin discovered the perivascular channels in 1858, and the later studies of his revealed two concentric channels about the brain

vessels bounded by double sleeve-like sheaths, which he called adventitial and periadventitial sheaths. These sheaths surround the veins and arteries of the brain and cord; but, according to Mott, do not cover the capillaries. According to the findings of Schwalbe, Key and Retzius, Quincke, Jacob, Lewandowsky, Bruno, Mott and others, the perivascular channels freely communicate with the pericellular spaces within the cerebrospinal axis and the subarachnoid cavity around it.

The cerebrospinal fluid is under a certain normal tension and exerts a pressure of 100-150 mm. of water (sodium carbonate solution) when the body is in the horizontal position, and 410 mm. when the body is in the sitting posture. In pathologic conditions this pressure may rise to 700 mm. or more (Krönig). Quincke's pressure measurements are about the same. Reduction of this pressure by the withdrawal of a portion of the cerebrospinal fluid is a source of danger in arteriosclerosis and syringomyelia.

The normal amount of cerebrospinal fluid present at one time is stated by Mott to be 100-130 c.c. But as many as 1000 c.c. have been collected in 24 hours, and even 2 litres, from a man with punctured meninges (Billroth), so it is evident that the fluid is ever forming and is discharging constantly from the subarachnoid spaces. The discharge is two or three times faster from a cranial than a spinal puncture (Dixon and Halliburton).

The direction of the current in the subarachnoid space is of prime importance, but is not yet fully determined. Certain investigators claim the subarachnoid fluid escapes along the perineural channels of the cranial and spinal nerves and enters various lymphatic vessels and nodes from which it passes on to the venous circulation. This seems reasonable and is supported by the experiments of Flatau on the olfactory nerves of rabbits. He injected the perineural spaces of this nerve and traced the substance to the cervical lymphatics. But Orr and Rows,⁶ in the current number of *Brain*, prove by many experiments and cases of their own and by the extensive work of others (Marie and Morax, Homén and Laitinen, Perrone, Guillain, Marie and Guillain, Sicard and Bauer, Spitzer, Zalla, etc.), that the lymph stream of cranial and spinal nerves is an ascending one; it empties chiefly into the

lymph spaces of the brain and spinal cord but, to some extent, into the meningeal spaces also.

Homén and Laitinen injected streptococci into the sciatic nerve and traced them upward to the meninges. Perrone employed pneumococci in the same nerve; they very soon reached the cord and involved those segments connected with the sciatic, on the same side. Guillain injected ferric chloride into the sciatic. Subsequently, he introduced potassium ferrocyanide into the general circulation, and found Prussian blue in the posterior roots of the nerve and the posterior columns of the spinal cord. Twenty-four hours after injecting bacteria into the sciatic nerve, Homén found bacteria lining the perineurium proximal to the point of injection, the sheaths of the spinal ganglia, the anterior and posterior roots of the sciatic nerve, the meninges of the lumbar enlargement of the cord, and the peripheral substance of the cord itself, especially along the posterior median septum. Spitzer injected *abrus precatorius* into the pulp of a dog's tooth. After a few days, he found under the microscope an ascending neuritis of the trigeminal nerve reaching the semilunar ganglion and involving it. Many other experiments and cases may be quoted, but these are sufficient to show that cerebrospinal fluid does not escape through the perineural channels.

Leonard Hill and Cushing reached the conclusion that this fluid escapes through the veins into the sinuses. They injected a saline solution with methylin blue into the subarachnoid space and soon detected it in the jugular vein, but found none of it in the lymphatics. They injected other substances, as mercury, a non-absorbable gas, etc., with the same result. Reiner and Schnitzer injected a solution of ferric chloride and afterward a solution of potassium ferrocyanide, in the same way, and found Prussian blue in the jugular vein but not in the lymphatics. According to these investigators the subarachnoid fluid escapes through the perivascular spaces, around the veins of the pia mater, into the sinuses of the dura mater, especially into the superior sagittal sinus.

Orr and Rows,⁴ in their article on "The Lymphogenous Infection of the Central Nervous System" show that the spinal subarachnoid fluid escapes in a similar manner. They introduced colored fluids into the subarachnoid space about

the spinal cord and were able to trace them, first, into the adventitial sheaths of veins and capillaries and, thence, into the veins themselves. Contrary to the observation of Mott, Orr and Rows found adventitial sheaths about the capillaries, as well as about the veins and arteries. Tracing the course of colored fluids and the extension of infection and toxic inflammation, they conclude that the cerebrospinal fluid flows out through the capillaries and veins of the respective regions. Lewandowsky agrees with this conclusion; he adds the arachnoid granulations of Pacchioni as supplementary outlets for the cranial fluid. At present ample facilities for draining the subarachnoid space are demonstrated beyond question. Hence, this inquiry arises:

When a substance is injected into the subarachnoid space, by lumbar or cranial puncture, does it flow out through the perivascular channels accompanying the immediate tributaries of the lumbar, intercostal and vertebral veins and the intracranial veins emptying into the dural sinuses, or does it enter into the cerebrospinal axis, along similar perivascular channels, there to penetrate the walls of capillaries and veins and flow into the blood stream? If the subarachnoid fluid flows directly out into the veins, then the subarachnoid space is a very disadvantageous entrance for a remedy designed to influence the central nervous system; because that remedy must traverse the whole circuit of the blood stream, and perhaps run the gantlet of the chorioid glands, before it can enter the central nervous system. On the other hand, if the fluid flows into the brain and cord in order to enter the capillaries and veins, then the subarachnoid space affords the most favorable approach possible to conditions existing in the central nervous system.

There is some evidence of the existence of currents of great importance whose flow is into the nerve tissues. The work of F. W. Mott, the investigations of Dixon and Halliburton, and the monograph of the late Prof. Goldmann all indicate that the cerebrospinal fluid bears the nutritive substances to the brain and cord and receives the waste products of metabolism from them. Mott even suggests that the subarachnoid fluid gives water and CO² to the blood and receives oxygen and sugar from it, the latter upon reaching the neurones being converted into neu-

ral energy by a glycolytic ferment. It is an indisputable fact, manifest to everyone acquainted with relations of nerve cells, that nutriment can pass from the blood to the nerve cells and waste products from those cells to the blood through no other medium than the "ambient lymph," which surrounds the nerve cells. According to our present evidence, the "ambient lymph" is cerebrospinal fluid. But this does not necessitate the passage through the chorioid plexuses of all nutritive substances destined to the brain and cord. Such an assumption seems preposterous and impossible; the blood supply of the brain is so rich the chorioid arteries are relatively so diminutive; and the metabolic processes in the neurones are so constant. However, this does not militate strongly against subarachnoid medication.

The work of Orr and Rows has demonstrated some very important facts: 1. An ascending current in the lymph stream of nerves. 2. A continuity of the perineural and epineural spaces, containing the lymph stream, with the meningeal spaces and with the intramedullary spaces of the spinal cord (and brain). 3. Continuity of the intramedullary spaces with the adventitial spaces of capillaries and veins. And 4. The emptying of these adventitial spaces into the veins themselves. Since the capillaries connecting the arteries and veins of the brain and cord are embedded within the cerebrospinal axis, it follows as a natural consequence, that a certain amount of cerebrospinal fluid must reach the blood stream through the intramedullary channels of the brain and cord. Nature thus furnishes a natural medium to carry the subarachnoid remedy to the very heart of the neurones.

The intramedullary lymph channels are probably arranged into systems which communicate with each other to a limited extent but have very free intrasystemic communication. Marie and Guillain deduce from their investigations the probable existence of a common lymph system for the posterior roots of spinal nerves, the posterior columns of the cord and the pia-arachnoid covering them. In this system the lymph flows freely among the nerve fibers. D'Abundo and Guillain support this deduction; they trace the lymph upward and forward in the posterior columns. *Tabes dorsalis*, it is claimed, is a lesion of this system resulting from lymphogenous infection.

Acute and chronic myelitic conditions, general paralysis of the insane, acute poliomyelitis and the acute ascending paralysis of Landry are, also, said to be lymphogenous infections. Whether there are other definite lymph systems in the spinal cord and brain that set the bounds for systemic lesions is not yet determined; but there is revealed already an interesting prospect for the subarachnoid devotee and there is some promise of great results from subarachnoid medication.

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TECHNIC FOR THE PREPARATION OF SALVARSANIZED OR NEOSALVARSANIZED SERUM AND ITS INTRASPINAL ADMINISTRATION.

W. T. MEFFORD, M. D.

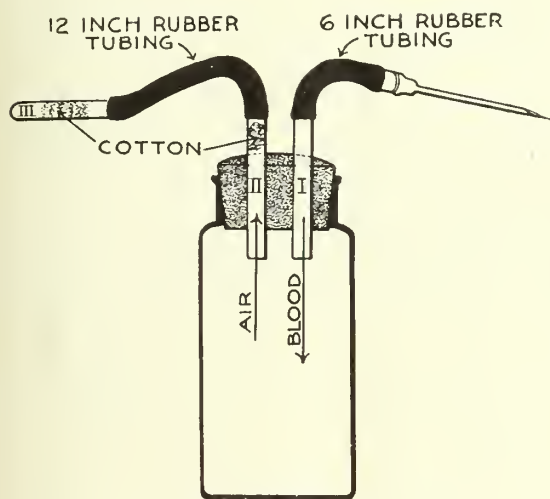
CHICAGO

Since Doctors Cotton, Swift and Ellis, McCaskey, Robinson and others have established the value of the salvarsanized or neosalvarsanized serum in the treatment of brain and cord lues, it behooves all to acquaint themselves with this method of treatment. In the first place, I consider it one of the most essential things to have a healthy and pure serum, free from lipid or fatty substances, chyle or food products. In appearance, it should be perfectly transparent and of a straw-greenish bile color. If a serum is turbid, thick, creamy in appearance, this is due to lipid or chyle, and it is not suitable for administration.

In order to get as pure a serum as possible, it is best to first have your patient under observation for two or three days before administering the remedy; this is to get a line on his general health; besides, fleshy or fat people generally have more or less lipid or fatty matter and food products circulating in their blood at all times. Lipid or fatty matter and chyle will cause a

serum to deteriorate rapidly, even though taken under sterile conditions and kept in the ice box. Fat people should be put on a special light diet and given a laxative for two or three days before the administration of the medicine.

The time to administer the medicine and take the blood should be before the meal. This is to avoid lipoid or chyle in the serum. After administering the salvarsan or neosalvarsan, wait thirty minutes to one hour and take about 60 c.c. of blood from the vein at the elbow. Swift and Ellis' conclusions from their experiments were, that the proper time to take the blood was one hour after administration of the medicine. McCaskey recommends waiting from thirty to forty-five minutes. I have been unable to observe any difference in the serum, whether the blood was taken in thirty minutes or one hour.



BLOOD TAKER

To take the blood I prefer to use the following method: I use a 3 oz. salt mouth bottle into which is fitted a rubber cork with two perforations from 4-6 m.m. in diameter. Through these perforations I pass two pieces of glass tubing, about 3 inches long letting them extend $\frac{1}{2}$ -inch within the bottle. To No. 1 piece of glass tubing I attach a short piece of rubber tubing 4 to 6 inches long; into the other end of which I insert a No. 19 size needle. In No. 2 piece of glass tubing I place a small amount of sterile cotton. A piece of rubber tubing about 1 foot is passed over the end of No. 2 glass tubing.

Into the other end of this rubber tubing I insert a No. 3 piece of glass tubing. No. 3 is also fitted with sterile cotton, and is called the mouth piece. The sterile cotton in the glass tubing is to prevent any contamination from saliva passing into the container and also to prevent the sucking of blood into the mouth.

All parts of the apparatus must be properly cleansed and thoroughly sterilized. This can be done by boiling the rubber tubing and needle for twenty or thirty minutes. The glass parts after cleansing can be baked at a high temperature, 150 to 200 degrees C. for thirty minutes. I usually take the blood from the vein at the elbow. First, tie a rubber constrictor or bandage above the elbow to distend the vein; if the vein is not sufficiently distended, a few backward and forward motions of the arm will distend the vein more. Do not tie the constrictor so tightly as to stop the flow of blood through the arteries; if you do, you will not be able to get the proper amount of blood. Cleanse the skin over the vein at the elbow with alcohol and just before inserting the needle, put it through an alcohol flame. Insert the needle in the course or direction of the vein with the beveled point outward or upward. As the needle enters the vein make suction on the mouth piece of blood taker. After taking the amount of blood required, which is usually about 60 c.c., before withdrawing the needle, untie the constrictor or bandage, make pressure where the needle enters the skin and withdraw the needle, continuing to make pressure over the vein for a short time after the needle has been withdrawn to avoid a hematoma.

Immediately after taking the blood close the rubber tubing of container by applying artery forceps. Wrap the container of blood with sterile gauze and place in the ice box for a few minutes until a clot has thoroughly formed. After clotting, remove the rubber cork and pass a sterile wire between container and the blood in order to loosen the clot from the container, so that the serum will separate more readily. After loosening the clot do not put the same rubber cork back in the container, but use a sterile glass stopper. Wrap the container in several thicknesses of sterile gauze and again place in the ice box for serum to separate. Just before

time to administer the salvarsanized or neosalvarsanized serum pipette off (I prefer to use a 20 c.c. Luer syringe with a long 18 or 19 size needle attached), the serum from the clot and centrifuge out any corpuscles.

Prepare two centrifuge tubes by proper cleansing and sterilizing and tying several thicknesses of sterile gauze over the top of each centrifuge tube. This is to prevent any contamination while centrifuging. These tubes can now be re-sterilized on account of possible contamination in tying the gauze over centrifuge tubes. If one uses a Luer syringe the needle can be passed through this gauze and equal amounts of the serum put into each centrifuge tube. Close the perforation in gauze caused by the sterile needle, by drawing the fibres of cotton together. See that the sterile gauze is cut short that it will not interfere with the centrifuge tube fitting into its holder.

After centrifuging, pipette off the serum with Luer syringe, first removing several outer layers of gauze, passing the needle through the gauze; or one can remove the gauze from the centrifuge tube and pour the serum directly into the test tube, provided there is only a small amount of corpuscles thrown down. Place this serum in a strong glass test tube, $\frac{3}{4}$ -inch in diameter by 8 inches long, having a plain end that will not break so easily when heated. Seal the test tube by heating in flame. After the test tube has been sealed, immerse or completely cover in a water bath and inactivate at 56 degrees C. for thirty minutes.

The serum should be administered soon after inactivating, because it is frequently the case that serum after inactivation immediately begins to deteriorate and this is why I advise the administration as soon as properly cooled to 38 degrees C or 100 degrees F. While the serum is being inactivated one should sterilize the spinal needle and syringe as well as prepare the patient by cleansing the back with alcohol and painting with iodine.

To make the spinal puncture, I use a No. 18 or 19 size needle. For grown people the barrel of the needle should be about 3 or $3\frac{1}{2}$ inches long, with a short, sharp, beveled point. This needle can be fitted with a plunger if desired; however, for drawing spinal fluid, where one

does not have to be particular if a small amount of blood comes away with the spinal fluid, I prefer to use an open needle with a Wassermann laboratory special stop cock attached to the outer end. This stop cock is so arranged when the needle enters the spinal canal the spinal fluid will immediately pass out, and the flow can be controlled by the stop cock. At the same time to the direct end of the stop cock, a short rubber connection can be made with the Luer syringe. The lever of the stop cock is now turned in the direction of the needle and the salvarsanized serum injected. This rubber connection rather insures safety as any little motion imparted to the needle will not be so likely to wound the intra-spinal membranes which might cause a slight hemorrhage. Again, it occasionally happens that the point of the Luer syringe is broken off if direct union is made between the needle and the syringe.

Have the patient lie on either side with the legs flexed on the chest, and direct the patient to place his head on his knees and bow out his spine or back. If a line is drawn across the back from the crests of the ilia, this line will pass over or near the spine of the fourth lumbar vertebra. The puncture should be made between the third and fourth lumbar vertebrae. Start the needle $\frac{1}{2}$ -inch to either side of spine and on a line midway between the spines of third and fourth vertebrae. Direct the needle upward and inward, entering the canal through the intra-vertebral foramen. If using a needle with a plunger, as the needle enters the canal, withdraw the plunger. If the spinal fluid comes away too freely return the plunger, to allow the fluid to drop slowly away. Too fast a flow of spinal fluid may provoke a headache or other unfavorable symptoms.

It occasionally happens that one gets what is called a dry puncture with the patient lying on side. In such a case, one should remove the needle, have the patient sit up in bed with the legs flexed upon the chest and spine bowed out as directed when lying on side. Even in this position it occasionally happens that the spinal fluid comes away slowly. Directing the patient to sit erect will allow the fluid to flow more freely. In any case where the spinal fluid comes away slowly or under a low pressure, it is best

not to take too great an amount of spinal fluid, not more than 8 to 12 c.c. However, it is best to have the patient lie on the side, with the head and shoulders on a level or a little lower than the hips when administering the salvarsanized serum.

After one has taken the proper amount of spinal fluid, have ready a 20 c.c. Luer syringe properly sterilized, cleanse the test tube containing the salvarsanized or neosalvarsanized serum with alcohol, and with a small sterile file make a rather deep and long nick low down on the drawn end, tap the drawn end to break off and pour the salvarsanized serum into the Luer syringe, first placing several layers of sterile gauze over the point where the needle fits on to the syringe, and holding in place with the finger to keep the serum from running out. Now start the piston and invert the syringe, and pushing forward the piston till a drop of serum stands at the needle part, insert the needle part of syringe into the needle which is in the spinal canal and make very slow or light pressure on the piston while injecting the serum. The amount of inactivated serum administered is from 12 to 20 cc. The patient should be kept in bed with his head low for at least two or three days until completely recovered from the effects of the injection.

Usually there is but little disturbance after the first day or two, however, it occasionally happens that severe disturbances will follow for a few days after an intra-spinal injection.

In the preparation of the serum one should observe the strictest precautions to prevent any contamination. The room in which it is prepared should be as aseptically furnished as the surgeon's operating room and the individual preparing the serum should be dressed as the surgeon, wearing a gown and have the head and mouth covered with sterile gauze. In addition, the materials should be handled with a 10x15-inch glass screen between the person preparing it and the serum. An ordinary window glass will answer this purpose fairly well.

In conclusion I wish to emphasize. First, the patient should be in as healthy a condition as possible. Second: The patient should be es-

pecially prepared by dieting and given a laxative for two or three days. Third: Administer and take the blood before the meals, "preferably before breakfast." Fourth: The time for administering the salvarsanized serum is according to Swift and Ellis 12 to 24 hours after the withdrawal of the blood. Fifth: Observe the strictest laboratory precautions in the preparation of the serum to prevent any contamination.

Sixth: Remember this is a surgical operation and the physician who administers the remedy should prepare himself as the surgeon does for a major operation. Seventh: Keep a close observation of the patient for at least 6 to 10 days after the spinal injection. Eighth: Injections can be repeated in 1 or 2 weeks till the desired number are given, this being usually 3 to 6 or 8.

2159 W. Madison Street.

THE INTRA-SPINAL ADMINISTRATION OF NEO-SALVARSAN, USING THE PATIENT'S OWN SPINAL FLUID AS A VEHICLE, TECHNIQUE AND DEMONSTRATION.*

GEO. W. HALL, M. D.,
CHICAGO, ILL.

I want to express to you my appreciation for the invitation extended by your president to present this case before you.

Case 1. I am presenting this case especially, as it is one of cerebrospinal lues which has been under my care since the early part of May, 1914, and he has received no other treatment except the intraspinal injections of neosalvarsan. The first examination of the spinal fluid in May of this year showed a cell count of 200 cells with a positive Nonne and positive Noguchi, as well as a positive Wassermann test. We then injected three milligrams of neosalvarsan into the spinal canal. A second examination of the spinal fluid was made in the early part of June, which showed a cell count of 66, with the positive Nonne and negative Noguchi. A second injection was made at that time and on July 6, about one month later, the cell count of the spinal fluid was 20. A third injection consisting of 3 milligrams of neosalvarsan was made at that time. Since then no examination of the spinal fluid has been made. At the time of entrance into the hospital the patient showed a decided paresis of the entire right side of the body

*Read before the West Side Branch of the Chicago Medical Society, Oct. 15, 1914.

and he complained of great weakness in the right arm and leg. Both the subjective and objective symptoms have materially improved and today he does not complain of any weakness of the right side of the body, although the face on the right side still shows slight evidence of paresis of the muscles of that side.

Our method of administering neosalvarsan has been as follows and we have made about 40 different injections, and as far as my personal experience goes, I have had absolutely no untoward results in any case; I dissolve .15 gram of neosalvarsan in $2\frac{1}{2}$ cubic centimeters of distilled water which has been again freshly boiled and cooled. This preparation is very soluble in this amount of water and makes a hypertonic solution or a 6 per cent. solution of neosalvarsan. I take 1 minim of this solution and after allowing 8 to 10 c. c. of spinal fluid to flow into the barrel of a Record syringe, the 1 minim is dropped into the spinal fluid so as to allow it to be thoroughly mixed with the spinal fluid in the syringe and after obtaining 16 to 20 c. c. of spinal fluid in this manner, it is then reinjected very slowly into the spinal canal.

In the experience of those who have obtained untoward results and in some cases disastrous results of which I have personal knowledge, I believe they can be accounted for on the basis of the technique employed. Either a trauma has been produced to the meninges or the amount of spinal fluid has been too small, thus making a too concentrated solution which, coming in contact with the cauda equina, has produced organic changes, or perhaps the injection has been made too high and the lower portion of the cord may have been involved.

It seems to me that this method of medication has some advantage over the Swift-Ellis method of treatment in that it is much simpler, the dose apparently is more accurate and the dangers of infection are much less. I might say in conclusion that the mixture which I have described above, contains 4 milligrams to each minim of the solution. Consequently, in administering a dose of 3 milligrams, 20 c. c. of spinal fluid can be withdrawn and then reduced to 15 c. c. before reinjecting. I believe the smaller dose is preferable to larger doses.

THE INTRACRANIAL TREATMENT OF PARETIC DEMENTIA.

RALPH C. HAMILL, M. D.,
CHICAGO, ILL.

In December, 1913, Marinesco and Minea reported the injection of salvarsanized serum into the subdural cavity in two cases of paretic dementia. Each case received 20 milligrams dissolved in 2 c. cm. of the patient's inactivated serum injected into one side of the skull only.

In the *Revue Neurologique* of March 15, 1914, they reported the injection of seventeen more cases. In these cases they gave ten milligrams dissolved in 4 c. cm. of inactivated serum into each side of the cranial cavity. There was some psychic improvement in four of the nineteen. Four had epileptiform convulsions following the injection; one had a monoplegia of the left arm lasting for a few hours. None of the four had any return of the accidents.

Encouraged by these reports I have used the intracranial injection in two cases in the Cook County Hospital.

Case 1. Tony M., aged 34 years, entered the hospital June 12, 1914. For the past seven months he had had trouble in walking, becoming more and more uncertain, until at the time of entrance he could scarcely walk at all. He had cramping pains in the legs and there was slight incontinence of urine at times. Denied venereal infection.

Examination revealed pupils which reacted to convergence, but were fixed to light; a markedly ataxic gait; a marked Romberg sign, slight incoordination of hand movements; loss of patellar and Achilles reflexes; loss of ulnar, testicular and Achilles pain sense, as well as a generalized diminution of response to the pin prick. He was too stupid to permit of any satisfactory mental examination. Urine was negative. There were 24 cells to the cubic millimeter in the spinal fluid, phase 1 positive. Five days after entrance he had three typical epileptic convulsions about ten minutes apart, each followed by a period of confusion in which he had to be restrained. Following these convulsions the plantar reflexes were temporarily decreased and the great toe showed an extensor response.

On July 8 I made a Neisser-Pollock puncture eight centimeters above the orbital arch, 2.5 centimeters to right and to left of the median line. This was immediately preceded by a spinal puncture with the withdrawal of about six c. cm. of spinal fluid. One hundred mgm. of neosalvarsan were weighed out, dissolved in five c. cm. of spinal fluid and injected subdurally, one-half into either side of the cranial cavity.

*Read before the West Side Branch of the Chicago Medical Society, Oct. 15, 1914.

ity. Fourteen hours later he became restless and resistive. Twenty-four hours later temperature was 104 rectal, pulse 136, and respirations 36. Three days after the injection, temperature, respiration and pulse had returned to normal. Twenty-three days after the injection the patient had two convulsions similar to those already recorded. At present he is in very much the same condition as upon entrance.

Case 2. Claude P. was admitted to the hospital March 25, 1914. He was thirty-three years of age. His illness started three months previously with tremor of the hands, arms and lips. His speech became halting. "I said what I wanted to, but had trouble getting it out." About the time of the onset he began to lose control of his legs, the gait becoming progressively more difficult. Running had been impossible for two months. Vision had failed noticeably in the past two months. There was imperative micturition at the time of entrance. He had had a chancre and secondaries about ten years ago. Drank considerably up to five years ago, but little since. Married four years, three children alive and well, one miscarriage following a fall. Upon examination he showed a very marked tremor around the mouth; the pupils reacted normally to light and accommodation; the deep reflexes were all brisk, with a bilateral ankle clonus. Plantar flexion was normal.

Dr. E. V. L. Brown reported a beginning primary optic atrophy on the right side, advanced optic atrophy on the left, with multiple areas of old, disseminated choroiditis.

Lumbar puncture revealed phase 1 positive, one hundred cells to the cubic millimeter. Lumbar puncture April 28 showed eighty cells to the cubic millimeter; May 19 ten cells to the cubic millimeter. On this last date Dr. Hall injected three mgm. of neosalvarsan into the lumbar dural sac. June 5 there were twenty-six cells to the cubic millimeter; the spinal injection was repeated. These treatments were very well borne.

From June 15 to July 10 the patient's condition rapidly became worse. He was very restless, ran away whenever the opportunity presented; several times he cut his straps, broke out the window screen and ran away in his hospital shirt. His gait and station also rapidly became worse, so that early in July he frequently fell upon attempting to walk across the ward. July 10 one hundred mgm. of neosalvarsan dissolved in five c. cm. of spinal fluid were injected subdurally, one-half into each side of the cranial cavity. Four hours after the injection he vomited; twelve hours later he had a temperature of 102 degrees per rectum. Five hours after the injection he had some difficulty in speaking; forty-eight hours after paresis of the right hand appeared.

July 13, three days after injection, he presented a paralysis of the right lower face and arm, less of the leg. The right wrist jerk and triceps jerk were slightly more brisk than the left. Articulation was very poor and he was somewhat apathetic. There was no Babinski sign. The following day Dr. Hall

observed and noted the following phenomena: The patient's head turned to the extreme right; there was right conjugate deviation of the eyes, twitching of both eyelids and the right side of the face, still greater twitching of the right hand and arm, none of the leg, which became very rigid. The pupils were fixed and the patient did not respond when spoken to. One-half hour later head and eyes had resumed normal position. The patient recognized the nurses and responded when spoken to. The right hand still twitched and there was slight twitching of the right eyebrow. There was right plantar extensor response. Thirty-six hours later a practically identical convulsion took place. July 15 Nonne reaction was strongly positive and the spinal fluid showed a slight yellowish tinge, suggestive of hematogenous pigment.

Three weeks after the onset of the hemiplegia it had entirely disappeared. When he was able to get about the ward after the slight dragging of the right leg had disappeared, his gait was noticeable better than before the intracranial treatment. His mentality had so much improved that he was commonly used as a messenger boy by the nurses on the ward, whereas previously he had run away on every occasion, cutting his restraint straps when necessary.

October 9 the lumbar puncture was repeated; twelve c. cm. of spinal fluid was drawn, five c. cm. to be used for injection and seven c. cm. for examination. Seventy-five cgms. of neosalvarsan were dissolved in fifteen c. cm. sterile distilled water. One c. cm. of this solution, containing fifty milligrams of neosalvarsan, was mixed with five c. cm. of spinal fluid. Not having an electrical drill for the Neisser-Pollock puncture and being forced to depend on a hand drill, I had the patient given gas. Under the anesthetic, however, he continued to struggle and became very cyanotic, so I ceased giving him the anesthetic and let him come out before making the puncture. This was done on the left side without any discomfort, owing to the fact that I happened to strike one of the previously made holes. On the right side, not being so fortunate, the slow drilling caused him some discomfort, which he said was no worse than that caused by the lumbar puncture. Into these puncture holes twenty-five milligrams of neosalvarsan in two and a half c. cm. of spinal fluid was injected on either side.

For twenty-four hours following this last injection the patient seemed fairly well, though towards the end of this period he was beginning to get a little stupid and apathetic. During the following week he had on the average about one slight convulsion a day; in none of them was the loss of consciousness of more than a few seconds' duration, and in none were the motor manifestations of more than a moderate degree. During this period of a week he was more or less apathetic, answered in monosyllables and then only when urged. Mental ability was evidently less than before this last injection. This addition to the history, written October 24, finds him improving rather markedly during the past four days, in which there

have been no convulsions. The clinical examination of reflexes, movement and sensation shows practically no change.

Note, February 24, 1915.

Patient had slight daily convulsions for four days, November 16 to 20. December 1st another injection was made of 20 mgm. dissolved in 3 c. c. of spinal fluid into either cranial half. Two weeks later he began to have attacks in which he would give a hoarse cry, raise the right arm rigidly above his head, twitch about the mouth, and then appear dazed for a few moments. If standing at onset would not fall. For two weeks he had these spells, four to six in an hour, then be free a few hours and again the fits; then he gradually improved. January 20th a ventricular puncture was made; 16 mgm. dissolved in 18 c.c. ventricular fluid were injected. Temperature gradually rose to 102° thirty-six hours later. Three days later right arm and face paralyzed. The next day irrational and visual hallucinations; paralysis disappeared in three weeks. Since then has improved so that now he reads understandingly, plays cards, and takes part in the life of the ward. He is, however, irritable and unstable emotionally.

Previous methods of treatment of paretic dementia have certainly given no great results. Because of the poor blood supply, relatively speaking, of the cortex it seems quite possible that this region should continue to harbor spirochete when other more vascular areas have proven hostile to them because either of antibodies or spirocheticidal drugs. There is no doubt that substances travelling in the blood stream do penetrate the non-vascular areas of the cortex, but probably not in as great a quantity as they would other more vascular areas. If it is advisable to increase the amount of any given substance in the cranial cavity the direct injection through a small puncture would seem to me practically and theoretically the proper method to pursue. There are several reasons why the direct intracranial injection is preferable to the intraspinal, if experience proves what my results seem to indicate so far; namely, that the dangers are not great. In the first place, we are injecting the spirocheticide into the immediate neighborhood of the disease-producing organism. Thereby we give it the greatest chance of acting

directly. In the second place, it seems possible to use very much higher dosage here than by the lumbar route. Marinesco has used ninety-five milligrams divided between the two sides without harmful result; I have used one hundred without serious permanent harm. This is against three to five milligrams intraspinaly.

With even this small dose in the lumbar region some very unfortunate accidents have occurred. Whereas in the lumbar dural sac the free-lying roots are completely bathed in the arsenious liquid, in the cranial cavity only the surface is immediately exposed and the underlying tissue is being bathed by its normal fluid. So far as the procedure itself is concerned, on both occasions when I used a drill having 1750 revolutions per minute the puncture was made with practically no expression of pain by the patient. Making the puncture as recommended, eight cm. above the orbital arch and two and one-half from the middle line, allows the injection to be made over relatively dumb areas of the cortex.

30 North Michigan Boulevard.

EXPERIENCE WITH ABDERHALDEN SERO-DIAGNOSIS IN PREGNANCY, CARCINOMA AND NERVOUS DISEASES.*

J. FAVIL BIEHN, M. D.
CHICAGO.

Our experiences with the Abderhalden test, comprising some 300 examinations, in which we were able to follow the case clinically, to determine the final diagnosis, is not sufficient to warrant drawing any definite conclusions as to its reliability. Nevertheless, we believe that we are in possession of a number of facts as a result of our experience that warrant us, at least insofar as the clinician is concerned, in calling to his attention some facts that may tend to establish a better understanding regarding this procedure.

The results of our experimental work upon animals regarding these so-called protective ferments, have borne out the statements of Abderhalden as to their specific nature. However, owing to our lack of knowledge, we are at present unable to control our experiments as regards the

*Read before the North Shore Branch, Chicago Medical Society, November 3, 1914.

amount of proteid injected and, as Abderhalden says, are brutal in our work, insofar as we probably inject amounts thousands of times greater than are presented in the natural course of events. It is true that in the beginning we encountered difficulties, due principally to improper preparation of fundamentals, and, to a slight extent, defective dialyzers, but these have been overcome. In addition, we have made many tests in which we were unable to follow the case clinically. These naturally are of no value.

Although many observers, especially Pierce and Williams, Kammerer, Flatow and Plant doubt, and some even deny, the specific action of these ferments, many equally prominent authorities affirm Abderhalden's claims.

The variations in results are probably due to variations in the fundamentals and technic, leaving out of consideration improper technic; and also, I believe, due in a great measure to the natural limitations of the test being as yet not understood or even known.

In all our tests we adhered rigidly to the original Abderhalden technic. We believe that until improvements in the technic that promise great advances have the support of a number of competent observers, the original method of Abderhalden should be strictly adhered to.

Above all, we must realize in the beginning that the test is not a test for pregnancy, or carcinoma, etc., but a test to determine the presence or absence in the serum of ferments, capable of digesting placental, carcinoma, or other definite albumins. To be of clinical value in diagnosis, we must go even further, if possible, and determine that these ferments are specific and not non-specific proteolytic ferments.

Practically all observers agree that negative reactions are of great value, but positive tests may be the result of errors in substrat, technic, or due to the presence of non-specific proteolytic ferments. It would seem that a positive reaction, if due to these non-specific proteolytic ferments, could be in a measure determined by testing against a large number of fundamentals and this apparently is proving true. Therefore, I believe that in the future we will test our serum against a variety of diverse fundamentals, as well as the special one in question. Irrespective of what specific ferment we are searching

for in a particular serum, we will test that serum against thyroid, liver, fibrous tissue, brain, placenta, various carcinomas, etc. If we obtain a reaction with only one definite variety of substrat, we are more certain of its specific nature. While a negative reaction with placental albumin, is of value, in the case of carcinoma, this does not hold true unless we use as substrats a variety of histologically different fundamentals. We have obtained reactions in cases of columnar carcinoma with columnar carcinoma fundamentals only. This holds equally true for squamous-cell carcinoma, although in three cases sera reacted positively with either columnar or squamous-cell fundamentals. This might be considered as analogous to the group reactions mentioned by Abderhalden.

The reaction to parenchyma is probably specific, while that to stroma is not. This must be taken into consideration, for a positive reaction against a fundament prepared from a thyroid carcinoma may mean a specific carcinoma, stroma, or thyroid parenchyma ferment, and these must, if possible, be differentiated by using as fundamentals a histologically identical carcinoma from some other organ than the thyroid; also, a thyroid parenchyma fundament. If there is a reaction with thyroid fundament and carcinoma fundament from another organ, the indications are that a carcinoma is present. It may be in the thyroid, or it may be in some other organ, with a concomitant pathologic condition in the thyroid gland. We must not lose sight of the fact that our cases are not always plain carcinoma cases. The average pathological case rarely is, owing to the interdependence of one organ upon another. Further, metastasis in other organs, as a result of pressure necrosis, may result in the serum reacting to fundamentals from these various organs. Much of the difficulty with carcinoma fundamentals, in which the stroma reacts, may be obviated by preparing these fundamentals from metastases, which are usually rich in parenchyma and poor in stroma.

We must always consider a positive reaction questionable until we have eliminated the probability of a reaction being due to the presence of other cells than the essential ones in our fundamentals.

A positive test with placental fundamentals, tests

with other fundaments being negative, means the presence of a specific ferment for placental albumin, from which we infer that the patient harbors placental elements. It does not necessarily mean pregnancy, as it may be produced by the simple retention of syncytial cells in the uterus, hydatiform moles and chorio-epithelioma. We must not consider a positive test with placental fundaments as meaning pregnancy, except it is confirmed by a thorough clinical history and examination.

In many of the cases in which positive tests for placental fundaments are reported in males and others with pathologic conditions, we note the preponderance of conditions in which there is a high leucocyte count. This positive reaction may be due to the presence of non-specific ferments from the leucocytes. We know that the leucocytes secrete proteolytic ferments, as they are principally concerned in the liquefaction of the pneumonia exudate, and in sections, an area of liquefaction may be seen surrounding the leucocytes. If these ferments are absorbed into the blood stream, they must continue to exert their action, and as they are non-specific, would react with a number of fundaments.

It is to be remembered also that in late and grave cases of malignancy there are no specific ferments in the serum, indicating a cessation of reaction to the disease on the part of the patient's cells.

If the question of carcinoma only can be decided by means of sero-diagnosis, it will be of untold value in such cases in which a piece of tissue cannot be obtained without a major operation; or where, early in the disease, a differential diagnosis, especially as regards carcinoma of the internal organs, is well nigh impossible at present without an exploratory operation.

Owing to the ever present desire on the part of the profession for a specific and ready method for diagnosis, we are inclined to rush at any new procedure blindly, especially when it is proposed, as this was, by a man such as Abderhalden, whose recognized high standing was the result of an enormous amount of work on proteid metabolism. All clinical laboratory signs are only of value when taken as a part of the whole symptom-complex. We must weigh carefully all the signs and symptoms and then attempt to decide upon a diagnosis.

The apparent simplicity of the test, and the original claims concerning its specific nature, have led us to demand too much of it, and failing in one or two cases, to discard it as worthless. We forget that this test, like all others, has its restrictions. We do not condemn the Wassermann because it gives a positive reaction in yaws, etc., nor the Widal because it is negative in the early stage; but we do not rely upon them entirely, and we must take all laboratory findings only as additional symptoms that serve to confirm or deny the other clinical signs.

5444 LAKEWOOD AVE.

INJURIES OF THE HEAD.

H. C. MITCHELL, M. D.,
CARBONDALE, ILL.

Centuries before the circulation was discovered trephining was done in different countries for injuries of the head, as has been well demonstrated by skulls unearthed that bore the antemortem marks of the trephine; and yet the conservative surgeon of today would sometimes give all he possessed to know when, and when not, to trephine an injury of the head.

While we have made definite progress in the treatment of this form of injury in the last decade, yet we are still far from the goal when it comes to making surgery of the head an exact science.

How strongly are we reminded of our limited knowledge in this branch of surgery, when called to a severe emergency head injury.

What would it be worth to the surgeon if he only possessed definite knowledge, and could say, this is a case of compression, or this is a case of concussion, or it is a case of concussion complicated with compression or contusion, or that it is a case requiring operation, or one in which an operation is clearly contra-indicated?

While I shall not attempt or claim to give anything new, if only with my limited experience in this class of injuries I can lay down for your guidance a few landmarks, this paper will not have been written in vain.

Probably the most frequent class of head injuries which the surgeon is called to treat are cases of concussion.

These are the cases not dependent on fracture, contusion, or tearing of the blood vessels,

and many times autopsy fails to show the slightest trace, or visible alteration, in the brain of the deceased.

I remember a few years ago to have been called to treat a man, who, while hunting, accidentally shot himself with a shot gun. When the explosion came the muzzle of the gun was within a few inches of his head, and the charge of shot, wads, etc., plowed a furrow through all the temporal muscles and outer table of the skull, in the temporal region, but not a shot entering the cavity of the skull, and yet the man was killed almost instantly, as was testified to by one of his hunting companions. He never breathed after being shot. I afterward held a post-mortem, removing the valvarium, and examined the brain, and there was not a mark of contusion.

The force of the concussion had produced an instantaneous paralysis of the cerebral cortex, vagus and vasomotor centers.

In head injuries the respiratory center is always paralyzed before the circulatory, the heart often continuing to beat for some time after the respirations have ceased. If someone had been present who understood this fact, and had performed artificial respiration for a time, this man might have recovered.

What is the picture presented to the surgeon in uncomplicated cases of concussion? The patient is, above all, unconscious; he sees, feels, and hears nothing. His expression is that of one in a deep sleep.

The extremities are cold, the skin pale and has a pinched expression, there is usually repeated vomiting, especially immediately following the injury. The pupils contract when suddenly exposed to a bright light, and as a rule, they will swallow when liquids are poured into the mouth. One of the cardinal symptoms is deep respiratory efforts alternating with superficial and irregular breathing, that sometimes stops, only to begin again after a pause. The pulse becomes less frequent, often sinking to forty or less to the minute. If the patient becomes worse and the end approaches, the pulse that has been slow becomes more rapid and the rapidity increases until the pulse becomes weaker and ceases to beat altogether. If on the contrary the patient becomes better, the pulse first recovers and returns to its normal frequency.

For sake of convenience, I have divided these cases into three classes:

In the first or milder class of cases, the patient is benumbed and unconscious, but the heart does not become slow; thus we know that only the cerebral cortex and not the vasomotor centers are affected, which allows the heart to go on working in a normal way.

In the second class of cases we know a greater degree of violence has been done, and that not only the cerebral cortex has been paralyzed, but the vagus centers have been stimulated to increased activity.

In the third or severe form of concussion, not only are the higher psychical functions profoundly depressed, but also the automatic apparatus hidden in the medulla oblongata is attacked. The patient lies in the deepest coma, and in contrast to the other forms of concussion the pulse is rapid and irregular.

When we come to analyze symptoms of concussion, we are able to extract certain underlying principles; we find the common factors in these cases are first, that the symptoms are produced with extraordinary suddenness, and with fullest intensity at the very outset; second, that thereafter they diminish in intensity progressively, and are transitory; that is, they disappear in a few hours or days at the least. Any condition, therefore, which remains stationary for a long time, or which grows worse, is not pure concussion, and after a reasonable time, if there is no improvement, we can no longer rest our diagnosis on uncomplicated concussion, but must assume the presence of a more severe lesion, such as hemorrhage or contusion.

The thing that actually happens in cases of concussion, is a disturbance of consciousness in varying degrees, together with alterations of the normal cardiac, respiratory and blood pressure functions.

The former we refer to as lesions of the gray matter of the cerebral cortex, the latter to a derangement of the three vital centers in the medulla, viz., the respiratory, the vagus or cardio-inhibitory, and the vasomotor. If we keep clearly in our minds the mental picture of concussion it enables us to differentiate between cases of concussion and compression.

A history of the case will often enable us to make a diagnosis.

Concussion is of necessity produced by the sudden impact on the skull of a body in rapid motion, or of the rapid motion of the skull against a body. There must be a blow. For instance, when a slow moving wagon wheel runs over a man's head and injures it, we know it is not concussion, or when the bumpers of a slow moving train catch and injure his head, that the same thing obtains.

The surgeon should, if possible, determine whether or not the injury produced an immediate effect on the central nervous organization (concussion) or a disturbance of the circulation (compression) or those that are the result of destruction of brain tissue (contusion), or a combination of all of them.

Concussion.—In the treatment of concussion, nothing should be done that will in any way depress the heart's action. The surgeon should attempt to restore the bodily warmth by putting the patient in bed and covering with warm blankets, hot water bottles to the extremities, hot mustard plasters over the heart, hot cloths over the abdomen. The most powerful stimulant to the heart is the faradic electric current applied over the heart and over the soles of the feet and palms of the hands, as it instantly increases the blood pressure.

The head should be shaved so that it can be thoroughly inspected.

The head of the bed should be lowered so as to favor the circulation to the brain. The most important indication to be met is stimulation of the heart. After removing the mustard place sponges wrung out of hot water over the heart. Hypodermic injections of camphor oil or ether are beneficial. If symptoms of congestion set in after recovery from the concussion, the head should be covered with an ice cap.

During the stage of congestion the patient is very quickly quieted with an injection of morphin, which is indicated on account of the hyperemia. When we are called to treat a case of compression of the brain, we should not forget that the brain is enclosed in a complete bony casing, and is entirely incapable of being compressed into a smaller compass without injury to its structure.

Here again we are greatly aided in our diagnosis by a history of the case. When we see a patient who has only recently recovered from

an attack of concussion, and in a short time begins to complain of ringing in the ears, flashes of light, headache, vomiting, restlessness, drowsiness, delirium, congestive flushing of the face (observe the contrast in concussion where we always have extreme pallor), contracted pupils, increase of blood-pressure, and a beginning slow pulse, we know that we have to deal with a case of hemorrhage somewhere in the brain, because of the "free interval," and the train of symptoms that rapidly followed.

Ninety per cent of the hemorrhages after injuries of the head are from the middle meningeal artery or some of its branches. If the hemorrhage be small, and the pressure only a moderate one, we will have only the headache, delirium, vomiting, flushing of the face, slow respirations and pulse, with rapid rise of blood pressure. If, however, we have, in addition, stertorous respirations of the Cheyne Stokes type, the face livid and the slow pulse becomes rapid, we know the end is near and that we have only a limited time in which to relieve our patient.

I know of no test for compression so sure as rise in blood pressure, and the surgeon should, if possible, carry with him to cases of head injury a sphygmomanometer, in order that he may take the blood pressure, because in cases of compression, the pressure will rise suddenly from normal to two and even three hundred, which is one of the most important diagnostic symptoms.

Let us discuss briefly what takes place in the brain in cases of compression. The cerebral cortex is the seat of consciousness, requires the greatest amount of nutrition, and is more easily disturbed than any other portion of the brain. Consciousness is lost more readily than any other function and, vice versa, returns only after the circulation has been fully restored.

As soon as the compression takes place it produces an anemia of the brain by squeezing out the blood and paralyzing the cortex, this in turn stimulates the vasomotor apparatus which causes the blood vessels of the rest of the body to contract, and as there is no vasomotor apparatus in the cerebrum proper, it forces the blood from the rest of the body into the brain and nourishes it, and is nature's method of restoring the circulation.

The vasomotor centre, however, can only retain its stimulation for a limited time, and then the blood pressure falls again, often below the

normal, only to go up again when the vasomotor apparatus resumes its stimulation. And thus we see the life and death struggle going on between the compressed anemic brain and the vasomotor centres; and when the compression pressure exceeds that of the vasomotor centre death occurs from a paralysis of the vagus, or centres of respiration and circulation.

If the compression is caused by a fragment of bone pressing upon some portion of the brain, the pressure symptoms come on without any free interval as in hemorrhage, and unless it be removed by operative measures it produces permanent and constant encroachment on the cavity of the skull.

All, even the most severe symptoms of general compression, may disappear as soon as the factors causing compression are removed, or they may not. As long as the circulation continues regular and of good volume, there is no cause for alarm, but a condition of deep coma, however, with complete muscular paralysis and a total loss of sensitiveness to external impressions, with dilatation of the pupils and irregular deep respirations, will terminate fatally unless some remedy be applied immediately. Patients may recover completely from conditions of stupor with slow pulse, even after it has continued for weeks.

The treatment of cerebral pressure consists always in the removal of the cause. Whenever possible, and when the necessary surgical interference does not involve more danger than the intracranial pressure itself, the endeavor should be made to remove the factor producing it, whether it be a depressed fragment of bone or an extravasation of blood.

Before opening the skull we should, if possible, make a differential diagnosis, because cases of concussion *do not* call for surgical interference.

In cases of compression, if we have decided an operation is necessary, before opening the skull we should, if possible, locate the seat of the lesion, as it will oftentimes save extensive trephining, and subjecting an already badly shocked patient to additional shock and danger.

In order to locate the lesion, the surgeon should by all means have a fair knowledge of cerebral localization, and in that way he is able to say in the majority of instances whether or not the lesion is located in the frontal, parietal, temporal or occipital lobes.

Since ninety per cent. of the hemorrhages of the brain are from the middle meningeal artery the surgeon should have a knowledge of the location of this vessel and its branches in the brain, as it will greatly aid him in locating the hemorrhage.

Cases of mild paralysis coming on from 24 to 48 hours after injury are, as a rule, due to collections of serum or edema and should not be trephined. Cases of hemorrhage producing moderate pressure symptoms do not require trephining, as the clot will usually be absorbed.

The cases in which pressure symptoms come on shortly after injury and the paralysis persists, should be trephined to prevent the ill effects on the nerve fibres of continued pressure, and to restore consciousness, and by that means prevent inhalation pneumonia, from which so many patients die.

In all cases of pressure symptoms on the medulla it is imperative that trephining be done, as the bulbar centres always give out in a few days under continued pressure.

The entire scalp should be shaved and cleansed with soap and water and alcohol, ether or benzine, except that no washing should be done in the wound, or in close proximity to it. In cleansing the scalp, always wash from the wound, instead of towards it. Always protect the wound with sterile gauze when cleansing the scalp. Pick out all foreign particles from the wound with sterile forceps, and sponge the wound with a 20 per cent. solution of iodine, taking care not to allow it to run off the sponge into the brain or meninges. The entire scalp should be covered over with a 50 per cent. solution of iodine.

If in doubt relative to the location of the compression it is better to expose a large area of the brain, and I know of no method so good as Cushing's osteoplastic flap, as in that way you can turn out a large sequestrum of skull with the scalp attached, which, after the clot is removed, can be laid back into position without danger of the bone dying.

To do the Cushing's osteoplastic flap operation quickly, and deftly, a small trephine, a Marion's guide and a Gigli's chain saw are necessary. Always make the arch of your flap toward the top and the base below. The large flap enables you to more effectually expose and remove the clot and secure the bleeding vessels.

I believe, gentlemen, that in every case of

head injury we are called to treat, we should weigh well the symptoms before deciding to open the skull. We should always take the conservative course, as I believe it to be the height of rashness and lack of wisdom on the part of the surgeon to trephine the skull of every unconscious patient with a head injury.

DISCUSSION.

(Abstract)

Dr. W. F. Grinstead, Cairo: The subject of cranio-cerebral localization is right at the bottom of procedures in the management of all these head injuries. If we know where the sinuses are in the skull, if we know where the principal arteries are, then we can see or learn from the circumstances where the force of the blow has been spent.

We know that the seat of most of the motor functions is located along the fissure of Rolando. We know that one of the principal arteries of the brain is the middle cerebral, which the great Charcot named the "artery of cerebral hemorrhage." That is the artery which knocks so many of us old fellows over without any warning at all, and we don't know how it happened. It lies in the fissure of Sylvius. However, this artery or the branches of it is not the artery nor the branches that usually concerns us in hemorrhages following injuries. As brought out by the essayist, the middle meningeal is the artery that most concerns us, but the branches of the other artery may be entered, as it lies beneath the membranes of the brain and it also lies deep down in the sulcus of Sylvius.

Now, if we draw a line from glabella, we will say, right over the top of the head toinion, we have got the line marked out that divides the two hemispheres and locates the superior longitudinal sinus. Next, we want to locate the upper end of the fissure of Rolando. You see, along the fissure of Rolando is located the function of the arm, the function of the leg, the function of the body and face and head. An inch back of the center corresponds to the point of the upper end of the fissure of Rolando.

To get at the lower end of that fissure approximately we will run the line seventy-five per cent. of the distance from glabella toinion; put the tapeline on that and bring it over to the external angular process of the frontal bone which is easily located with your thumb. Now, then, I will pass a line directly up from the center of the space beneath the condyle of the mandible perpendicular to this line. I am now approximately at the inferior Rolandic point.

That is a simple, easy rule which we can carry in mind and when we have a head injury we will use the razor, will mark the lines out, and we can put our fingers on the injury, if shown by any of the functions of the body.

The next most important point is the direction of the middle meningeal artery, which the essayist says is most commonly injured when we get hemorrhage

and get a clot and pressure. Now, if we run a line from the center of the external auditory meatus, right up to this twenty-five per cent. distance, that passes across the Sylvian point where the middle cerebral artery comes out from underneath and shows in the fissure of Sylvius. Just in front of that a small distance is the course of the middle meningeal artery. It runs along the front part of the squamous portion of the temporal bone and the front part of the parietal bone. That is a simple method of locating these things.

By this method of locating the Sylvian point, we also locate Broca's center of speech. You remember that Broca, in 1861, explained to the profession and the world that the center of speech existed in the inferior frontal convolution of the frontal lobe of the brain. Some years ago, I had a patient brought to me ten days after the injury. There was no sign of an injury anywhere at all, except a little blackening of his upper eyelid. The man walked into the office; his brother came with him, talked his case over, and explained to me that the patient had been at work on a farm when a limb fell, striking him on the side of the head. There was no depression, no tumefaction, not anything there at all except a little discoloration of the eyelid. The man had never spoken since the injury; he ate well, slept well, walked about everywhere, but had not spoken a word. I shaved that fellow's head and marked out carefully Broca's center, and I trephined him. I made the crescentic flap, as the essayist has advised, bored a small groove, put in the DeVillbis trephine, ran it around so I could get a piece of bone out, took a Horsely drill separator, and raked out a thick, heavy clot that had been poured out evidently from the middle meningeal artery, and put the piece of bone back. When I first began to practice surgery I thought all these pieces of bone had to be thrown away. I thought that if they were detached they would necrose. That is a great mistake. Some of you older gentlemen may remember how Senn used to take these pieces, lay them in a tray of hot normal salt solution, leave them until he had finished his operation, and then put them in. Be sure that if there is bony contact on each side, these pieces will live and will fill up the gap, and you need not be afraid, either, if you do not find a clot outside the membranes of the brain, to open the dura. I have had patients where the injury itself had opened the dura and brain substance to the amount of a teaspoon or two had run out; I have had those cases do well. Avoid infection in such cases and your patient is all right.

Dr. J. L. Wiggins, East St. Louis: I wish I could feel the supreme confidence of the essayist in his differential diagnosis between compression and simple shock, but unfortunately I am unable to do so. The rule is that where you have a degree of shock as treated of by the essayist, you have either an extradural or a subdural hemorrhage or edema of the brain.

Another point that I think the essayist overlooked in the treatment of these cases was in his diagnosis, and the diagnosis means a great deal in the initial treatment. As Dr. Grinstead said, you can open the dura, but there is a great deal of satisfaction in knowing whether this hemorrhage is extradural or subdural. Of course, if unconsciousness continues, you can glean a great deal from that, because we know that unconsciousness comes as a result of compression, and if the hemorrhage is extradural compression does not take place as soon as it does if it is subdural, but a spinal puncture where there is any doubt will settle that point.

The unconsciousness and the conditions of which we complain are the same whether it is the result of hemorrhage or a serum, it is compression. The object is to remove that compression. The mere fact that it is subdural makes the greater necessity for relief before destruction ensues. There is absolutely no danger in an operation upon the meninges of the brain, provided you use strict asepsis.

Dr. A. H. Meisenbach, St. Louis: I think that Dr. Mitchell, in his paper, which has been very comprehensive, has covered the subject of cerebral surgery as it is understood today very well. When the head is struck by a body we have what is known as a *commotio cerebri* take place, which may be strong enough to break up the histological elements of the nerve centers. If it is deep enough we have symptoms as described by Dr. Mitchell, but his explanation cannot be improved upon. We know also that fractures occur by *contre-coup*, so that it may not be possible to detect at the site of impact of the blow that there is an injury, the effect taking place at the opposite side. We may also have rupture of blood vessels into the brain itself, and here I must differ with my friend from Cairo in regard to the artery of cerebral hemorrhage of Charcot, which is not the cerebral artery, which is the lenticulo-striate artery. This is the artery which is in danger in the syphilitic or the man that is arteriosclerotic, that breaks when he is undergoing some strain, where there is increased blood pressure.

In July, a man was brought to me from southern Illinois. He had been hit on the head from before with a wagon spoke and he was struck again high over the left parietal eminence, by a man from behind. The man was unconscious for six hours, had hemorrhage from the left ear. At the hospital he was not suffering from any of the acute symptoms of either concussion or compression. He was sent up with the idea that possibly an operation might have to be done. His pulse, however, indicated a certain amount of compression; it was between fifty and sixty and not too great in volume. There was no disturbance in the eye—the fundus was examined by an oculist and no disturbance was found. I watched him for forty-eight hours and concluded that this was not a case for operative interference, that Nature would come to the rescue. I placed him upon observation, gave iodide of potash and calomel, and

in three weeks' time the man went home to his farm in southern Illinois.

As far as cerebral localization is concerned, it is important, but since the introduction of the Gigli saw, the instruments of rapid penetration of the skull, saws, etc., and the making of the osteoplastic flap, this question of localization is not as fine a point in operative interference as it formerly was, when very small openings were made in the skull for diagnostic and operative purposes. I think we can lay down as a general rule that compression ought to be removed, and the chances are in nine cases out of ten that it must be removed by surgical means, by decompression.

Dr. H. F. Stanton, East St. Louis: I agree very decidedly with the way the doctor ended his paper, about this conservative business of going into the head. About fourteen years ago I was thrown entirely over a runaway team and lit on the top of my head on the curbstone. I was unconscious ten days. I had hemorrhage from the ears, nose and mouth, but the conservative method brought me through all right.

The paper of Dr. Mitchell was an excellent paper and almost exhausted the subject, and what it did not exhaust Dr. Grinstead filled up. Now, you know that cerebral localization is something you have all been reading and discussing and trying to find out about, and I presume that the majority of the men, and especially the younger men, understand cerebral localization. If some of you still have doubts I would suggest that you write Dr. E. T. Patrick of Chicago and get one of his pamphlets about cerebral localization. He is one of the best men on that subject that I have ever listened to.

Some years ago, in the village in which I live, we had a cyclone. About 150 people were killed and over 200 injured, and among those 200 I remember there were 27 cases of head injury. The majority of them had to be trephined or they had to have decompressions. Some of them had scarcely anything to go on outside, but after trephining or making an osteoplastic flap, we would find the inner table shattered badly, and, gentlemen, I believe that the one thing to do when you can find the point where trauma was applied and you have the localization symptoms is to make an exploratory incision.

The only case of these head injuries that we lost was a young lady, where we got into an argument whether or not we should trephine and did not trephine. Every case that we trephined got well and our technique was at that time not as good as that described by Dr. Mitchell.

Dr. H. C. Mitchell, Carbondale, closing: I think I have little to say in closing this discussion. There were one or two criticisms because I did not cover the entire field, I believe, of head injuries. I would just like to say if any man here can cover the entire field of head injuries in a fifteen minutes' paper, I should be glad to hear him.

Dr. Wiggins mentioned the point of edema. No

less an authority than Dr. Von Bergmann says that edemas should not be trephined, as the collection of serum is very promptly absorbed and will never produce any very deleterious results. I know that I have seen cases of injuries of the base, in which patients lay unconscious for three weeks or longer, make perfect recovery. I think our tendency is a little too much to interference in these cases. I believe the conservative plan in these cases is the better one.

HYPERFLEXION OF THE SPINE WITH MULTIPLE SPINOUS PROCESS FRACTURES WITHOUT ACCOMPANYING LESIONS.*

ORLANDO F. SCOTT, M. D.,
ARGO, ILLINOIS.

As a brief introduction to this subject a small amount of time should be allotted to the discussion of the relative frequency of spinal fractures in general, and in particular. Sawyer states, "that spinal fractures occur in less than 1 per cent. of cases." Stimpson, "that; of this less than 1 per cent spinous process fractures occur in but 4 per cent of spinal fractures; $\frac{1}{2}$ of these occurring in the dorsal (thoracic) region; $\frac{1}{8}$ in the lumbar region."

These relative percentages resolve themselves into statistics as follows. That there occurs but one, or less than one, spinal fracture in every 100 general fractures. Of this percentage, only four in 1,000 spinal fractures are spinous process fractures. Or, four in 10,000 general fractures are spinous process fractures. Of these spinous process fractures two in 1,000 occur in the dorsal region and 0.5 per cent in 1,000 occur in the lumbar region. Or, relative to general fractures, two in 10,000, and 0.5 in 10,000 respectively. Regarding the etiology of such fractures I find, that the various authorities and contributors differ considerably. I, herewith, submit an etiology based on a careful and precise search of the literature, coupled with personal experiences and deductions, which seem to more fully elucidate the factors involved in spinous process fractures.

ETIOLOGY.

1. *Direct Causes.*—(a) Trauma applied directly at any angle to the spine, over a spinous

process or processes, *without hyperflexion*. This type of fracture may occur regardless of whether or not one extremity of the body is fixed and the other movable. (b) Voluntary muscular action of violent hyperflexion (bending) or twisting (rotation) as in exercises or games.

2. *Indirect Causes.*—(a) Trauma applied at any point lateral to the spine with accompanying hyperflexion regardless of whether or not one extremity of the body is fixed and the other movable. But, more likely to occur, if one extremity is fixed and the other movable, because, under such conditions *hyperflexion* is more marked.

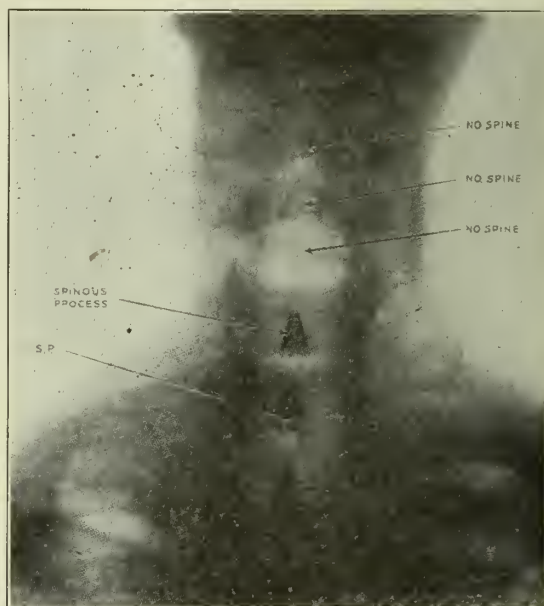


Fig. 1. Radiograph in Case of Spinous Process Fracture.

(b) Trauma applied directly at any angle to the spine over a spinous process, or processes, without causing any fractures directly, but with an accompanying *hyperflexion* that produces spinous process fracture, or fractures, from the extreme concomitant muscular action, at a higher, the same, or a lower level. This also is more likely to occur if one extremity is fixed and the other movable, for the same reason as given above.

3. *Mixed Causes.*—(a) Trauma applied directly to the spine over a spinous process, or processes, fracturing one or more spinous processes with a production, from the applied force

*Read before the Chicago Academy of Surgery, Oct. 23, 1914. Also before Chicago & Alton Railroad Surgeons meeting, Kansas City, September.

of the impact, of a *hyperflexion* which by its causation of extreme muscular action produces spinous process fracture, or fractures, additional to the ones caused by the direct external violence. This also is more likely to occur with one extremity fixed and the other movable.

There is no attempt to compare the relative percentage of such fractures with reference to their cause. From a survey of the reported cases, however, the large majority appear to have been caused by direct violence; the minority, due to indirect causes, but with no special effort to classify or describe the application of the force.

In the mixed causes, as I have called this sub-head, I am unable to find any recorded case explained on this basis.

If we eliminate the direct causes, which are most common, and consider only the indirect and mixed causes, we cannot help but note that *hyperflexion* beyond the physiological limit, is the real factor that produces spinous process fracture, or fractures, regardless of the applied force, and also regardless of whether or not one extremity of the body is fixed and the other movable, but most likely to cause this lesion when one extremity is fixed and the other movable. This predisposition to such an injury is further aided by the anatomical fact that the thoracic-cervical and thoracic-lumbar junctions are the unions of flexible and rigid parts and such lesions are, therefore, most frequent at or near these spinal levels.

Pathology.—The pathology of such an injury shows merely the fractures of the spinous processes in question with the accompanying evidences of traumata of the surrounding parts depending upon the severity of the initial applied force. The case I wish to report occurred on June 30, 1913.

Upon arriving at the scene of the accident, I found a strong, muscular man lying upon the ground complaining of considerable pain between the scapulae. This man was fully conscious and able to move his extremities.

Examination showed the presence of a small circular ring about one and one-half inches in diameter lateral to and at the level of the fifth thoracic spinous process. The skin forming the circle was seared and brown, as if by an actual cautery. The skin between the line forming the circumference of the circle, as

well as that of the remainder of the posterior surface of the back, was of ordinary color and showed absolutely no evidence of injury. This circle was located with its outer edge over the vertebral margin of the scapula and the inner portion of its circumference over the underlying muscles between the vertebral margin of the scapula and the spinous process at this level, but lateral to the spinous process in question. There were no signs of any fracture of this scapula elicited by examination or subsequent radiographs. There were, however, signs of spinous process fractures in the middle thoracic region.

Subsequent operative procedure the same day showed that the 4th, 5th, 6th and 7th thoracic spinous processes were completely movable and torn off of their respective vertebral bodies. There were no accompanying lesions whatsoever. The patient pursued an uneventful recovery without any complications or sequelae and within two months was able to return to his usual employment.

The history of the manner in which this injury was sustained illustrates fully the role that *hyperflexion* played. This patient was sitting upon a box in the open air eating his lunch at the instant he was injured. He was, naturally, sitting in a half stooping position. A piece of iron pipe 30 inches in length and one and one-half inches in diameter was accidentally dropped from the eighth-story window of an adjacent building, striking this man, end-on, over the vertebral margin of the left scapula, and the forcible, sudden impact, taking him as it did unawares, caused a natural hyperflexion of his spine in a partially voluntary as well as involuntary effort to overcome the applied force. The logical and actual result was the production of an extreme and exaggerated *hyperflexion*, which, aided by the increased strain on the attached muscles and ligaments beyond their physiological limits, and owing to the fact that this man was a strongly muscled individual, caused these spinous processes to be torn directly from their respective vertebral body attachments.

This case, while it comes under indirect causes, sub-head (a), shows most markedly and clearly, excluding direct causes, that, *hyperflexion*, by whatever means produced or induced, is practically the last etiological word in the causation of such injuries.

Argo, Ill.

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TREATMENT OF HYPO-THYROIDISM.*

H. G. HARDT, M. D.,
CHICAGO.

Hypothyroidism is a constitutional affection due to the loss of function of the thyroid gland, characterized clinically by a myxedematous condition of the subcutaneous tissues and mental failure, and anatomically by atrophy of the thyroid gland.

Cretinism as a form of mental defect was written about many years ago, even before the slightest suggestion of glandular inactivity was mentioned. Schiff in 1859 noted certain physical symptoms following the removal of the gland in a dog. In 1869 Dr. Hilton-Fagge published a paper on cretinism in this country, and mentioned that the thyroid was small but laid no stress upon it. Before this time it was not generally known that there were cretins among us. In 1873 there were 120,000 cretins in France.

Gull in 1873 called our attention to a syndrome in adult women similar to cretinism and called it a cretinoid state. Dr. W. W. Ord a few years later suggested the name myxedema. In 1883 Kocher reported cachexia strumipriva following thyroidectomies. Since then many experiments on animals have shown that a certain complex follows removal of the thyroids and additional symptoms when the whole thyroparathyroids are removed.

When the disease occurs in young children it is called cretinism and when appearing first after the fifth year, juvenile myxedema; when occurring in adults it is spoken of as myxedema. Recently Hertoghe of Antwerp has called our attention to a mild form of thyroid weakness which he terms "the social form" because the patient is able to mingle with society. This is undoubtedly the "Myxedema Fruste" of Reverdin.

In the juvenile type alcoholism, tuberculosis and lues are strong predisposing factors. Cretinism occurs endemically and sporadically. In the endemic form it is supposed that some chemical substance or microorganism peculiar to waters of certain regions invade the host. Nothing is known of the etiology of the sporadic form. Sajous writes of an auto digestive proc-

ess, the area so produced replaces normal tissue, but a fibrous tissue, resulting in cirrhotic atrophy which sooner or later annuls the function of the organ.

Myxedema occurs more frequently in women over 40, who have had a number of pregnancies or prolonged lactation periods.

Morbid Anatomy—In many cases there is a complete absence of the gland. In health a normal gland weighs 30 Gms; in disease, they may shrink to 3 and 4 Gms. In the young it is 1-300 of body weight, in adults 1-1800.

It has further been found on post-mortem that the heart muscles show infiltration, the liver cells swollen, the brain, lungs and spleen congested, parenchymatous infiltration of the kidneys, genitals atrophic, hypophysis enlarged; in fact, there is a parenchymatous infiltration of all organs.

Esser in 1907 found the bone marrow to be fatty and inactive, perhaps resulting in the anemia of hypothyroidism.

Both smooth and striated muscles show marked infiltration, the former giving rise to intestinal distention resulting in the frog belly symptom of all cretins.

The chain of symptoms of cretinism have been repeatedly demonstrated by thyroidectomizing animals, in families, where certain members were retained as controls.

Symptoms—In the congenital form the disease is not detected as a rule until after the sixth month. In the very young babies the earliest and only sign very often is the protruding tongue. Deficient oxidation manifests itself in physical and mental retardation. The child shows a pugginess, large tongue, open mouth, delayed mentality, laxity in muscle tone, cretinous appearance, thick lips, dry skin, scanty hair, and as time goes on a delay in speech and walking is noted. Dentition is slow and irregular, and a prominent abdomen is conspicuous. The temperature is frequently subnormal and a chilly feeling even in summer time is complained of; urine is diminished. Constipation is the rule. In cretins the genitalia are infantile. In adults menorrhagia is common. "If we can put aside such causes as fibroids and cancer, we will always think of thyroid deficiency." Headache and pain in the back are frequently complained of. The mental state is indicated by migraine, vertigo, hallucinations of hearing and melancholia, slug-

*Read before the Englewood Branch, Chicago Medical Society, January 4, 1915.

gishness to complete stupidity is often manifested. Some writers have characteristically stated there is a lack of growth in the longitudinal, but not so marked in the horizontal.

Wenzel has classified the mental state into:

1. Cretins: Those who are unable to speak, purely vegetative.
2. Semi-cretins: Those with limited language.
3. Cretinoids: Those who have some intelligence.
4. Mongolians: Those who have intelligence but do not yield to thyroid treatment.

This classification is rather crude and since the Binet Simon scale a better grading is possible. The mongolian, it has been found, never grades over five years, although the chronological age may be twenty, etc.

As before stated, the myxedema of Gull usually begins after forty. The urine is usually negative with the exception of a slight trace of albumin in some cases; anemia is present, the erythrocytes are diminished. An increase in weight is a common finding.

Once a case is seen the diagnosis is not so difficult.

In infancy fetal rickets and mongolism must be excluded.

In adults, nephritis and cardiac disease must be ruled out.

Prognosis (If left untreated): The cretin becomes a mental defective and a physical dwarf.

The adult gradually fails from the disease and dies usually from tuberculosis, pneumonia or cardiac insufficiency.

A clear picture must be kept in mind as to the factors at play to appreciate the result of treatment. They may be classified:

1. Deficient tissue oxidation, the rate of metabolism and nutrition in all tissues particularly those rich in phosphorous being retarded.
2. Deficient breaking down and carrying away of waste products, i. e., fats, etc.
3. Deficient resistance of the body to infection and intoxication.

In order to reconstruct these deficiencies, various remedies in times past have been tried, but to no success until special medication was discovered.

Schiff in 1884 first transplanted thyroid gland into the peritoneum of dogs, to relieve myxedema-

tous symptoms, with startling temporary results.

G. R. Murray in 1891 advanced thyroid extract with glycerin hypodermatically.

Hector McKenzie and Horwitz in 1892 gave thyroid extract by mouth with good results.

Other workers have tried thyroid extract per rectum and still others advise administration of inunction with lanolin cream base.

Baumann in 1896 isolated iodine in the thyroid and called it thyroiodin.

No drug has worked greater miracles than the administration of thyroid in hypothyroidism. It is perfectly marvelous to review the results that have been accomplished. Children rapidly on the road to perpetual care in an institution are spared to richer mental attainment and a place in society. Adults condemned to death because of mistaken diagnosis of nephritis are saved to continue their chosen fields of labor and usefulness. The results have been so startling that a number of physicians have reviewed their old records, for cases with a symptom group similar to the myxedemas and spent time and money to acquaint those so afflicted and yet living, with the benefits to be derived from the special medication now known.

During the first week of treatment, quiet and rest are very essential. Wine, beer and alcohol in any form, as well as tobaccos, should be prohibited. The constipation should receive careful attention; the elimination should be increased by soap or glycerin enemas 2 to 3 times per week and a saline laxative by mouth; these can be alternated. The hypothermia may be combated by massage, warm baths and an equitable climate. Patients do better in warmer weather. Precautionary measures to prevent deformity from the rapid bone growth must not be overlooked. The earlier the treatment is begun the greater the good obtained both physically and mentally. After maturity the special treatment does very little good in cretins. If instituted early a normal healthy child will result; if otherwise, one more will be added to the waiting list for admission to an institution for defectives. Procrastination of special treatment, in these cases, is criminal.

What has been said of juvenile myxedema applies as well to adult myxedema. By the administration of thyroid it is possible to increase the absorption of oxygen from 20 to 75

per cent. Osler and McCrae state the increase of the combustion may be as high as 15 to 20 per cent.

The thyroid when given may be stored in the thyroid gland or added to the circulation at a time precisely as if the thyroid and parathyroids had secreted it; this is a general supposition. The normal thyroid contains but 0.3 and 0.4 per cent of iodine protein substance.

Thyroid is best given in tablet or powder form. If any difficulty in taking tablets is had they may be given in milk, wine or soup.

Initial dose: Infants, $\frac{1}{2}$ gr. daily. Those 2 years old, 1 gr. daily. Adults 2 grs. daily

If raw sheep's gland is used begin with $\frac{1}{8}$ of a gland a day and increase the dose gradually until 2 glands are taken, spread on bread or give with rice or milk. Thyroid is best given at meal time.

The beneficial effects increase the sensitiveness of all living cells and sustain by direct stimulation the functional activity of the latter, causing an increase in metabolism, nutrition, also stimulation to the cerebrospinal system because of its richness in phosphorus; it increases the mammary secretion and relieves menorrhagia.

In growing children syrup of calcium lactophosphate U. S. P. 3j or less, according to age, is a useful adjunct.

To prevent recurrence, 1 gr. at bed time for children is necessary.

In adults, 2 grs. at bed time prevents recurrence of symptoms.

There are no bad effects from continuous thyroid treatment. Persons relieved by medication are as capable as those who are the happy possessors of a thyroid factory in their own bodies. In a case of Leopold Levi and De Rothchild where thyroid failed to act, pituitary extract 1.5 grs., which is equivalent to 7 grs. of the fresh gland, was given and marked improvement appeared within a few days, especially mental. Other cases have since been similarly benefited. The improvement is much more marked in sporadic cases than in the endemic.

Thyroid extract in 5 grs. doses is toxic and exaggerates the metabolic condition and loads the blood with pathogenic poisons; untoward effects are also produced by small doses too frequently given. The effects are manifested by fall in blood pressure, by tachycardia, restlessness,

insomnia, muscle pain and weakness, rapid emaciation, lowering of oxygenation, nausea, vomiting and diarrhea and pronounced mental symptoms, in fact a syndrome of Basedow's disease is presented. It is unnecessary to cause the absorption of more than $3\frac{1}{2}$ to 5 ounces of infiltration per day.

Various preparations of thyroid are placed on the market by different manufacturers.

Parke, Davis & Co. have a preparation called by Beebe Thyroprotein, supposed to contain the active principle of the thyroid gland. It increases oxidation, relieving disturbances of nutrition such as cretinism and myxedema. It is put up in 2 gr. tablets of 1 to 5 per cent. strength. It is less toxic than thyroid extract.

The 1 and 2 per cent. tablets are used almost entirely in the treatment of various forms of goiter.

The strong 5 per cent. tablets are reserved almost exclusively for different metabolic disorders, such as various skin lesions or joint conditions, myxedema, cretinism, etc.

Armour & Co. have standardized thyroid extract in the form of a powder and tablet of 1 and 2 grs.

Each 2 gr. tablet contains 2 grs. of thyroid extract and 3 grs. of excipient.

One grain of thyroid extract is equivalent to 5 grs. of fresh normal thyroid gland.

The standardization is 0.2 per cent. iodine content.

The Bayer Company have marketed Baumann's product known as Iodothyrene (Thyroidine). It is the chief active principle of the gland. It is supplied in powder and in 3-gr. tablet form.

Doses: Children, 3-12 grs. daily, better tolerated by adults. Adults, 6-18 grs. daily.

It is rapidly absorbed; 15 grs. are equal to 15 grs. of thyroid extract.

Knoll & Merk Co. placed on the market Thyraden, a stable thyroid extract containing the natural iodoproteid compound of the fresh gland.

Dose is two tablets of $2\frac{1}{2}$ grains each (equalling 5 grs. of the fresh gland) from 3 to 5 times daily. For children, $\frac{1}{2}$. The tablets are intended to be masticated. Oswald's Thyroglobulin and Fraenkel's Thyroantitoxin have also been tried.

In view of the fact that thyroid medication

must be continued throughout life, transplantation of thyroid is again absorbing the interest of the surgeon.

Christiani of Geneva states that only normal living tissue is to be used; numerous grafts about the size of a grain of wheat to be inserted in very vascular subcutaneous cellular tissue and that only human thyroid be used. The tissue can be kept alive one hour in normal salt solution, cut with a sharp instrument. They then are introduced in situ, where they gain a perfect foothold, becoming perfect thyroid parenchyma in fifteen months; they not only live but grow.

Recently sheep's thyroid has been transplanted in the human with good results. Christini found the most striking results to occur in the various types of cretinism. Special educative measures also benefit cretins.

Case 1, Helen T., age 10 years; father, alcoholic, luetic; mother, tubercular, luetic; brothers and sisters: Margaret, died at 9 months of age, pneumonia, mentality not known; John, died 1 year of age, pneumonia, mentality not known; Helen, now 10 years old, cretin; Joseph, died 7 months of age, dropsy; George, died at 4 years of age, pneumonia, mentality not known; Robert (baby), now 3 years old, cretin.

Helen came under observation April 26, 1913, and was diagnosed congenital cretinism with lues. Height, 3 feet 5 inches; pulse, 120; respiration, 28; weight, 44½ pounds.

Patient could hardly walk; at 8 years of age stunted longitudinally and mentally very stupid; speech blubbery; could not be sent to the store; face puggy, protruding abdomen, thick tongue, would suck her food; short stubby fingers; always felt cold, even in summer time; hair thin and scanty, skin dry and anemic, saddle nose, teeth decayed early, fontanels closed late, mouth open, jelly-like swelling in subcutaneous tissues, slit eyes, heavy lids. They did not want to take her in school and told me to send her to Lincoln Institution for the Feeble Minded. "She was so bad I felt ashamed to take her out on the street. She would drop her head on her chest like it was too heavy and was always tired. I always had to give her something for her bowels." Another child was born before Helen could walk.

She was placed on thyroid and protiodide of mercury and in two weeks marked improvement was noticed, which has been continuous ever since. She now goes to school and is in second grade, her articulation is better, the face shows more expression; she is anxious to acquire knowledge. The subcutaneous jelly-like swelling has mostly disappeared. She has gained 7¾ inches in height and 16 lbs. in weight, her hair is grow-

ing nicely, she is not nearly as constipated, her tongue is not so thick. In addition to the thyroid medication, she is receiving Elixir Calcii Hypophosphites. She is very playful and happy. She can be sent on errands and assists her mother in various chores—all this improvement in a little over one year of medication.

6860 S. Halsted Street.

SUMMARY.

Watch for the incipient cases, make an early diagnosis and give small initial doses and proceed slowly.

"Just as we search all our patients for tuberculosis, syphilis, alcoholism, a day will come when a systematic examination will also be made to ascertain their thyroid powers and defects."

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THE REPORT OF TWO CASES OF THE IMMEDIATE TRANSPLANTATION OF BONE IN COMPOUND COMMINUTED FRACTURES OF THE TIBIA AND FIBULA; THE BROKEN FRAGMENTS WERE USED FOR THE TRANSPLANTS; WITH EXHIBITION OF PATIENTS AND SKIAGRAMS.*

FRANK BYRNES, M. D.,
CHICAGO.

In reference to the two cases which I am about to report, I have searched the literature quite thoroughly and thought I was a pioneer in the successful immediate transplantation of bone where the broken fragments of the bone it-

*Read before the North Shore Branch, Chicago Medical Society, February 3, 1915.

self were used for the transplants. I find, however, Dr. Walter S. Barnes of this city antedated me by about two months from the date of the report of his case which appeared in the October number, 1914, of *Surgery, Gynecology and Obstetrics*.

These two cases are interesting, unique and instructive in showing what can be accomplished by the conservative management of fractures of this character, where there is a marked comminution and destruction of the long bones for several inches, by the immediate retransplantation of some of the broken fragments and keeping the wound sterile, the limb properly immobilized and extended to overcome muscular contraction. There is nothing to be lost by the experiment of bone grafting, and if properly done, under strict asepsis, there is everything to be gained. I think we are just beginning to realize the great recuperative power of bone to reform itself after partial destruction, and it should be our aim as surgeons to aid Nature in every possible way, such as grafting of bone, saving the periosteum, properly immobilizing the parts, etc. If we fail in our immediate effort, later we can, after the parts are healed, take a transplant from the other tibia and try it over again. Failing in this, we have the choice of a short limb or an amputation.

Case 1. Patient, John M. Thornton, aged 30 years, was admitted to my service in Columbus Hospital, November 9, 1913. Family history negative. Had the diseases of childhood; married. Present trouble: November 9, 1913, while in the employ of the Chicago Telephone Company, was riding a motorcycle and collided with a heavy seven-passenger automobile. Both machines were going at a good rate of speed. Mr. Thornton was thrown about thirty feet and was brought to the Columbus Hospital. A bandage of cotton cloth was tied around the thigh above the knee, including trousers and drawers, to stop bleeding. No effort had been made to protect the open wound with sterile gauze from coming in contact with his clothing. On removing the temporary tourniquet and clothing quite free bleeding started, and I applied the proper tourniquet again.

The right leg presented an ugly appearance about four inches below the knee. The leg was crushed for about five inches; there was a large gaping wound on the anterior surface for about four inches through which fragments of bone were protruding. There were also several smaller openings on each side of the larger opening through which bone fragments were protruding. Pieces of the clothing were ground into the wounds, giving ample cause for infection.

I immediately painted the wound and the surrounding surface with tincture of iodine and had the patient

more thoroughly prepared for operation. Fearing the possibility of tetanus, I gave 1500 units of antitetanic serum hypodermically, and repeated the dose next day. The radiographer was not in the hospital at the time, so no skiagraph was taken before the operation.

On examination, after being anesthetized, it was a question what to do with the leg. The tibia was literally smashed to pieces and pulpified for about five inches, giving no support to the formation of the leg. The lower part of the leg and foot could be rotated in any direction like a flail joint. I enlarged the opening upward and downward parallel to the line of the tibia for about five inches, trimmed off the traumatized edges of the skin, and removed the broken fragments of bone with tissue forceps and placed them in a normal salt solution. I had decided by this time, if I could find a piece of bone long enough, I would try and graft it between the ends of the broken bones. I removed all the fragments and put them in the normal salt solution. I only got one piece of any size and that will show in the skiagraph. It was from the outer layer of the compact bone of the tibia, four inches long; its width tapered from a point to half an inch at its base, its thickness being about one-quarter of an inch, merely the outer shell. It was denuded of its periosteum. In removing the loosened pieces of bone I found a shell of bone with its periosteum intact, about five-eighths of an inch wide and about one-quarter of an inch in thickness, broken from the bone above, but held loosely in place by the periosteum, and extending downward about one and one-quarter inches. This was primarily the outer or dense layer of the posterior part of the tibia. I also found a similar piece extending upward from the lower end of the fractured bone. This also was broken from its attachment to the tibia below, but was held loosely in place by its periosteal attachment. The distance between these two fragments was about two and one-half inches. I examined the fragments, found and removed a piece similar to the two remaining fragments just described. It was a shell from the outer surface of the broken bone, about two and one-half inches long, three-quarters of an inch wide and about one-quarter of an inch in thickness, with intact periosteum. I decided to graft this piece between the two pieces of bone just described. To the lower fragment I attached it with a silver wire; to the upper fragment I attached it in two places with silver wire and kangaroo tendon. This made a continuous shell of bone on the posterior and inner aspect of the tibia. I decided also to use the long splinter of bone as an additional transplant and also as a splint to assist in holding the bones apart and in place. The smaller end of the transplant I put into a wedge-shaped cavity in the lower end of the upper part of the tibia, posterior and to the outer part of the bone (shown nicely in the lantern slide). The lower end of the transplant I fitted into a shallow notch on the upper end of the lower fragment, on its posterior aspect. I secured this by winding kangaroo tendon about the transplant and lower fragment of

bone. It will be observed that both of these transplants were attached to the posterior aspect of the tibia and none connecting with the medullary portion of the bone. This left a cavity five inches long and the size of the upper end of the tibia. I now removed the tourniquet to look for hemorrhage. There was free oozing but no spurters. I could not detect pulsation in the anterior tibial artery. I made no effort to ligate any of the bleeding points, but packed the cavity carefully but firmly (so as not to displace the transplants), layer by layer, with iodoform gauze, from the bottom of the cavity to the top; and plain sterile gauze dressing applied over this. Adhesive strips were applied to the sides of the leg below the fracture for the purpose of extension. The leg was then put in a moulded fenestrated plaster cast extending above the knee, with foot-piece and the proper extension applied when returned to bed.

The first few days the outer dressings were freely saturated with sero-bloody discharge and were changed twice daily. I do not consider free oozing a detriment in cases of this kind, where there naturally is considerable handling and the wound open to infection from the time of injury. The iodoform inhibits the growth of germs and the free exudate carries them to the surface, if any have gained entrance. The wound remained sterile during the course of repair. Temperature never ran above 99 degrees, and after the fifth day, it was normal and remained so; pulse never exceeded 88. After one week I started to remove the iodoform gauze packing gradually, a little every day. It was three weeks before the last of the packing that was originally put in was removed. The gauze had remained sweet and clean. Healthy granulations were lining the walls of the cavity, and it was gradually closing in. I did not allow the cavity to close in rapidly, or allow the skin to grow down over the ends of bones and inhibit their growth, by acting as a limiting membrane. I kept the cavity well packed all the time with sterile gauze, which was changed daily. This was continued until the cavity was filled by growth of bone from below and from the ends of the upper and lower fragments. The fibula was broken transversely in one place at about the level of the lower fragment of the tibia. It came into position when the leg was extended and nothing was done to it. The patient was restless and twisted about considerably in bed, so it was difficult to keep up the proper extension. Realizing the leg must be kept immobilized, extension continued for several weeks, and nutrition maintained. I concluded these three conditions could best be met by the application of the ambulatory pneumatic splint. It was applied the thirty-fifth day after the injury. The patient was up and around from that date with leg properly immobilized and extended, enjoying the pleasure of walking about with no discomfort. The wound is easy to dress with the splint on and extension can be increased at will. The results in this case, which are largely due to the assistance of the ambulatory splint, and the comfort it gave the patient for the following

two months when the bone grafts were uniting, justify me in endorsing all the good things said about the splint.

The leg is in perfect alignment with three-quarters of an inch of shortening. He was able to resume his former occupation of telephone line work after a lapse of ten months. I think if an earlier application of the pneumatic splint had been applied, the shortening of the leg could have been avoided, and the patient suffered less discomfort.

A series of skiagrams was taken. The last one, December 24, 1914, about thirteen and one-half months after the injury, showed that firm bony union has formed between the ends of the broken fragments.

Case 2. Andrew Westerberg, aged 26 years; single, no previous sickness. Employed as laborer in Lincoln Park.

History of accident: March 30, 1914, while working in the lagoon of Lincoln Park, transferring heavy timbers from a larger to a smaller boat alongside, he was descending to the small boat, had the left foot on the small boat, and was drawing the right leg across the rail of the large boat preparatory to alighting, when a heavy timber twelve inches square and sixteen feet long, dropped and caught his leg between the timber and the rail of the boat, about four inches above the ankle-joint, and produced a compound comminuted fracture of the tibia, comminuting about five inches of the tibia and severely lacerating the soft parts, spiculae of bone were protruding through the skin. The fibula was broken transversely at about the level of the lower part of the wound. The case was immediately transferred by the secretary of the park to my service in the Columbus Hospital. I assumed charge of the case on entrance. Wound was wrapped up with some muslin cloth and bleeding quite freely. Clothing removed, I could feel no pulsation in the dorsalis pedis artery. Tourniquet was applied to check hemorrhage. The immediate wound and the surrounding parts for some distance were painted with tincture of iodine and further prepared for surgical operation. Ether anesthesia.

On examination I found the ankle-joint not injured, but about four inches above the joint I found the tibia badly crushed for about five inches, and skin crushed and lacerated. The foot and the part of the leg below the injury hung limp and could be twisted around in any direction, so complete was the crushing of the bone. I removed a large splinter protruding through the torn skin and put it in normal salt solution. It was about four and one-half inches long, three-quarters of an inch wide and half an inch in thickness. It was denuded of its periosteum. After the removal of this piece of bone, I enlarged the lacerated wound upward and downward until it was about four inches in length. I trimmed off the edges of bruised and torn skin that might be infected be-

fore I proceeded to explore the wound further. On further examination I found the rest of the tibia for the distance of five inches badly splintered in the longitudinal direction of the bone. The splinters were lying in various directions and not attached to any particular part of the bone. I cleaned out all the loose fragments of bone and put them in salt solution for future use. My first case had encouraged me to do a similar transplant on this case. Besides the large piece of bone that was protruding and was removed before the incision was made to enlarge the opening, among the splintered fragments removed I found two pieces of bone, one about four and one-half inches in length, and the other about an inch shorter. They were about the diameter of a lead pencil and were from the outer or compact layer of the tibia. The periosteum to all appearances was removed from these two pieces also. The larger piece that was removed I returned, after smoothing the ends, to the locality from which it came, the inner and posterior part of the tibia. I wired this to the upper and lower fragments of the tibia with silver wire. The other two long splinters of bone I placed alongside the larger piece just transplanted and tied the three pieces together with kangaroo tendon, using three strands encircling each end and the center of the bundle. My reason for returning the two small splinters of bone was that they appeared to have some periosteum adherent to them that might aid in the formation of new bone.

The tourniquet was removed and free oozing took place. There were no large spurting arteries, however. I again felt for the pulsation of the dorsalis pedis artery, but could not detect it. Blood had filled in between the splintered bone transplant and acted as a good bridging material for the formation of new bone. The excess of blood was removed and the cavity packed as in the previous case, firmly, layer by layer, with iodoform gauze. Over this was applied sterile gauze firmly bandaged. I applied a moulded fenestrated posterior lateral plaster splint with foot support, and sufficient extension to overcome the muscular contraction.

The after care of this case was similar to the first. There was considerable sero-sanguinous oozing for the first week. Only the outer dressings were changed. On the eighth day I started to remove the iodoform gauze packing a little each day, and replacing what was removed of the iodoform gauze with plain sterile gauze, so as to prevent too rapid a closing of the soft parts of the wound. The last of the iodoform gauze packing was removed on the twentieth day after injury. The wound was granulating nicely. There was no pus. Temperature never rose above 99.4 degrees. The fourth day it was normal and remained so during convalescence. Pulse but slightly accelerated during first few days.

I experienced the same trouble in this case as in the first one in keeping the proper extension to the leg and the patient comfortable at the same time while in

bed. I again decided to use the ambulatory pneumatic splint. His employers had to be consulted in regard to the rent of the splint, so it was the fortieth day of the injury before the splint was applied. He was out of bed and out of doors daily from this time on, with proper position and extension of his leg without discomfort.

The progress of this case and the first one were illustrated by the lantern slides of skiagraphs.

The growth of new bone in its behavior with transplants is interesting and hard of explanation. The lower end of this transplant that was firmly held to the tibia up to the time of its removal, did not, according to the skiagrams, show any evidence of new bone formation, although the end was replaced in the cavity from which it was displaced, giving every opportunity to supply the Haversian vessels with osteogenetic elements. The upper end of the transplant escaped from its firm apposition to the horizontal end of the tibia to its edge on the inside of the bone, yet in this position we find new bone developing, the transplant being gradually absorbed, and the new bone taking its place. The upper end of this transplant was freely movable under the tissue from the time it escaped from its original bed to its final removal. The question that arises is, did this transplant aid any in the reproduction of new bone, or was it the periosteum that produced it?

Dr. McWilliams, in the *Journal A. M. A.*, Jan. 31, 1914, page 346, lays great stress on the value of the periosteum being on the transplants, and secured in several instances reproduction of bone from the periosteum alone. Another interesting observation in connection with the transplants in this case is the non-absorption or the slow absorption of the long, slender, pencil-like fragment. In this skiagram taken seven months after the injury, it appears as much intact as when implanted. Dr. J. B. Murphy states that all transplanted fragments, large or small, are ultimately absorbed. This fragment appears intact in a later skiagraph. The absorption of these two fragments seem to follow in line with the views of Dr. McWilliams, that bone in contact with the soft tissues are absorbed much more rapidly than bone that is transplanted in the cavity of bone. The next skiagram, taken December 4, 1914, shows the new bone tissue giving a light shadow, but completely filling in the space from which

the remnant of the transplant was removed, and ultimately filling in the cavity between the upper and lower fragments of the tibia.

The next skiagram, taken December 31, nine months after the operation, shows a complete bony union between the ends of the tibia and also between the lower end of the tibia and fibula where it comes in contact with the new growth of bone. He is able to bear his weight upon it. The leg is in perfect alignment and is only one-half an inch shorter than the other leg. I feel in this case, as I did in the first case, that most of the shortening could have been avoided and the discomfort of the patient lessened by the early application of the pneumatic ambulatory splint. In neither of the two cases were the transplants placed in the medullary portion of the bone as is customary when the transplant is removed from bone, other than the one injured; on the contrary, they were grafted to the outer portion of the bone.

CONCLUSIONS.

From the experience gained in these two cases I have certain observations to make: 1. No long bone, especially of the legs or arms, should be amputated for fractures, no matter how much the bone is destroyed, if the blood supply is ample for the nutrition of the parts, without an effort being made at bone restoration by bone grafting or transplanting.

2. When a large cavity exists after the removal of destroyed bone for immediate injury, and there is free bleeding without any large spurters, and there has been considerable handling of the parts, pack with iodoform gauze and leave for a few days. It will stop the bleeding and help to prevent infection.

3. The sooner you get a patient with a broken leg or thigh up and about, provided you can keep proper extension and immobilization, no matter whether it is a simple, a compound, a compound comminuted, or a fracture where several inches of bone has been destroyed and a transplant substituted, a quicker restoration of the parts will take place owing to the better physical condition of the patient by being about. It was a physical impossibility to keep these two patients sufficiently quiet in bed with the proper extension required to keep the slender transplants in their

proper places for the time required, hence, the shifting of the grafts as shown in the radiograph. This could have been avoided, in my opinion, by the immediate application of the ambulatory splint.

4. From the close observation of the radiographs in these two cases during repair, I am impressed with the important part the periosteum plays in the reproduction of new bone. Good authorities on bone work claim that equally good results can be obtained whether the transplant has its periosteum intact or not. A careful examination of the skiagrams does not bear out this claim in these two cases.

In my first case the transplant that was used was a mere shell of bone with its periosteum intact and the parts to which it was wired were the same. The result was the rapid reproduction of new bone to fill up the cavity. While the transplant that was denuded of its periosteum and when returned as a transplant fitted very snugly at its upper end into a notch in the lower end of the upper fragment of the tibia, failed to perform any osteogenetic function, as far as can be determined by the x-ray, the lower end of the transplant that became displaced outward against the upper end of the lower fragment of the fibula covered with periosteum, showed the formation of new bone.

A similar condition was observed in the second case. The large transplant denuded of its periosteum was returned to the location from which it came and was held firmly in its place by a silver wire. The close approximation gave every opportunity to the osteogenetic elements to perform their function, but the skiagram showed the formation of no new bone. The upper end of the transplant which was displaced from its firm contact to the shaft of the tibia, escaped to the periosteal border, being held in place by mere contact. Yet we see new bone following along as the transplant is gradually being absorbed downward.

The two smaller spiculae of bone that were used as additional transplants show growth of new bone only where they are in contact with bone covered with periosteum.

I am so impressed with the bone-producing properties of the periosteum that I venture the assertion that if one of the long bones, crushed

as these two bones were crushed, had all the spiculae of bone removed, wound kept sterile, properly packed and immobilized with sufficient extension, the bone would reproduce itself to its former shape.

FISTULA IN ANO.

FRANKLIN B. MCCARTY, M. D.
CHICAGO.

Fistula in ano is a deep sinuous canal about the anus opening either on the surface, into the rectum or in both places. In a great majority of cases it follows an ischio-rectal abscess but is also found in association with local or general tuberculosis, anal fissure, ulcerated hemorrhoids, carcinoma of the rectum or stricture of the rectum.

An untreated ischio-rectal abscess tends to point in one of three ways—externally, discharging on the skin surface, internally into the rectum, or in both directions. The tendency of such an abscess is to remain unhealed, due partly to insufficient drainage and backing up of pus, and partly to the constant movement of the affected parts. These abscesses may spread upward toward the pelvis, the process being most frequently located just beneath the rectal mucosa due to mechanical limitation by the levator ani, or, less commonly, may penetrate the pelvic fascia and extend to the pelvic cellular tissue, in which case the opening may be placed high up in the rectum, in the groin or over the hip. The abscess may spread around the rectum, sometimes nearly encircling it, and such a condition is known as a horseshoe abscess.

The abscess may continue to drain indefinitely or it may heal over on the surface for a time, subsequently breaking down and discharging. After a certain length of time the track of such an abscess becomes thickened and fibrous and the condition of fistula results. This may be incomplete, opening either into the rectum or onto the skin, or complete, opening both internally and externally and so forming a communication from the inside of the rectum to the skin surface. The track may be a simple thick-walled tube or, as is frequently found, a more complicated system of branches and diverticulæ. Several fistulous openings may be observed on the skin sur-

face or in the rectum. When these occur on the surface they may be merely different openings of branches of one fistula, whereas multiple openings into the rectum usually indicate multiple separate fistulæ. The calibre of the track may be uniform or the cavity of the original abscess may persist. The walls of the cavity consist of fibrous tissue lined with pale granulation tissue. Whenever such an abscess exists with an incomplete fistula, any blocking of the canal leads to an acute inflammation and recurrence of the abscess.

In an external incomplete fistula the orifice of the track varies considerably in size and location. In the ordinary fistula the opening is small, often pin point in size and is located usually close to the anus but sometimes far out on the buttock, and from the opening project small reddish granulations. In the tuberculous form the opening may be the same as in the non-tuberculous except for a lack of granulations, or it may be large, irregular and sluggish in appearance, with a purplish edge and marked congestion in the surrounding tissues. The orifice in the internal incomplete type of fistula may be at any point between the anus and the internal sphincter, usually not above this level even though the sinus extends upward a considerable distance beneath the rectal mucosa. In the complete type the internal opening is frequently found between the external and internal sphincters. Sometimes the external opening is located on one side of the anus and the internal opening on the opposite side of the rectum, due to numerous and extensive branching of the track.

Diagnosis is usually easily made, although difficulty is sometimes encountered in following the entire course of the track and in determining whether it enters the rectum. Pain is frequently not present but the patient often complains of a sense of discomfort about the rectum. Acute pain occurs, as a rule, only when the entrance is blocked and pus has backed up, in which case symptoms of acute abscess appear. There is a constant or intermittent discharge of pus about the anus or from the rectum. This pus may be slight or profuse in amount and varies in character from the thin sanguinous discharge of a tubercular process to thick yellow material. Pas-

sage of feces or gas through the external orifice indicates an opening into the rectum.

Examination reveals an opening in the skin near the anus, sometimes concealed in a fold of skin, and from which a drop of pus may exude on pressure. The surrounding tissue is reddened and indurated. A fine metal probe when inserted into the opening and allowed to follow its own course without the use of force will indicate the direction of the fistula and by this means the extent of the track and its chief branches may be determined. The general direction of the main track is toward the rectum and in complete fistulæ the probe should enter the rectum, although sometimes the tip of the probe becomes lodged in a branch and the internal opening is not discovered. With one finger in the rectum the thickened and indurated track may be felt like a firm cord and the point of the probe may be felt just beneath the rectal mucosa. The internal opening may be found by using a rectal speculum or by inserting a strip of gauze into the rectum and injecting the sinus with a solution of methylene blue. The blue stain on the gauze will serve to locate the internal opening.

In the internal incomplete type of fistula one notes redness and induration and a feeling of resistance of the skin about the anus, and by use of a speculum pus may be seen to exude from an opening in the rectal wall. Digital examination reveals induration and sometimes tenderness at the site of the lesion.

Treatment of fistulæ depends largely on the type of lesion. Non-operative measures include injections of stimulant or antiseptic solutions and the application of caustics. Bichlorid, nitrate of silver and iodine are commonly employed and it is not unusual to see cases treated in this manner for months with no apparent progress toward recovery. Very few cases tend to heal spontaneously and such as do are small in extent and healing occurs only after a considerable length of time. Recovery in such cases is usually due to improvement in the general health of the patient, and systemic treatment is most important in every instance, particularly in individuals who have a tuberculous process elsewhere in the body. Fresh fistulæ following recent abscesses offer the greatest promise for heal-

ing with non-operative treatment, and under the stimulation provided by occasional probing and the use of mild antiseptics healthy granulations may appear and healing results. In such cases it is often necessary to enlarge the opening of the track so as to permit free drainage and subsequently it is important not to allow union of the skin edges to block the passage and prevent the escape of pus.

Of the operative measures the one usually employed in cases which are not suitable for expectant treatment is to lay open the entire track, dividing the sphincter if necessary, and allow the wound to heal from the bottom by granulation. If the fistula is incomplete the main track and its branches are laid open, the walls curetted and the wound loosely packed. When the fistula is complete, a probe is passed into the bowel through the sinus, the tip brought out of the rectum and the bridge of tissue, with sphincter included, is divided. The branches are laid open, the wound packed and allowed to heal from the bottom. This operation while rapidly performed, has the fault of leaving a large gaping wound to granulate and of endangering the sphincter muscles unnecessarily in some cases. It is indicated where a considerable part of the old abscess cavity still remains or where there is an encircling track around the rectum.

In many cases the fistulous track is narrow throughout and though it may branch and extend in many directions, no cavity of any size persists. Such cases may be treated by excision of the entire fistulous track with suture of the parts without drainage. This shortens the convalescence and does away with painful and irksome dressings and, most important of all, allows the patient to be up and about sooner and with greater comfort than any other method. The method of procedure is to have the patient thoroughly prepared with cathartics and enemata until the return wash is clear, and under complete anesthesia to stretch the sphincter until it is fully dilated. The fistula is then probed and an attempt made to find the internal opening but no force is used, as a false passage may be easily made. If the internal opening cannot be made out by probing or with a speculum, the rectum is packed with gauze, and methylene blue solution is injected through the external

opening, only a few c.c. being required. On removing the gauze the blue stain serves to locate the internal opening. An incision is then made with a sharp knife around the external orifice of the fistula and with a probe inserted one-half to one inch, the fistulous track is dissected out, keeping the probe inserted a short distance ahead of the dissection all the time. Care must be taken to remove all of the ramifications of the track and these can be located by means of the probe, the blue stain, and by the characteristic whip cord feeling of the track. The sinus must be followed to its end in all directions until it finally leads into the rectum. At this point it is advisable to make a buttonhole incision around the internal opening and to remove a small piece of mucosa with the inner end of the fistula. The rectal wall is then closed with interrupted fine linen sutures and after securing all bleeding points the wound may be closed with buried catgut sutures and silkwormgut skin sutures without drainage. The sphincter muscles are often undamaged by this procedure but when it is necessary to divide them it should be remembered that only one incision should be made and that the muscle fibres should be divided at right angles to their course.

A morphia and belladonna suppository is then inserted into the rectum and a dry sterile dressing and T binder applied. A liquid diet without milk is given for four days and a suppository containing one grain of iodoform is inserted night and morning. The bowels are kept closed with deodorized tincture of opium as required during the first four days and at the end of that time an ounce of castor oil is given in the evening and an oil enema is carefully given on the following morning. After this the bowels are moved daily with compound licorice powder which produces a soft non-irritating movement. After each movement the area around the anus is cleaned with warm boric solution, thoroughly dried and powdered with boric acid. The patient is allowed to be up on the fifth day and the diet is increased at that time, care being used not to use a diet which leaves a bulky residue until the wound is firm.

This method has given very satisfactory results and the convalescence has been greatly shortened and the personal comfort of the pa-

tients greatly increased. It gives an opportunity of getting the patient into the open air and of applying the general hygienic and constitutional measures so necessary to prevent recurrence of the condition.

Safe Milk for Baby.

With apologies to the author of Tipperary.

A **S** **O** **N** **G** **F** **O** **R**

It's a long way To cleanly dair-ies
 It's a long way to go It's a
 long way to cleanly dair-ies. To the
 saf-est milk we know!~
 Fare-well To old time methods
 Welcome to standards fair It's a long, long
 way to cleanly dairies. But our goals right
 there! It's a there!

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 By Dr. G. B. Young

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MARCH, 1915.

Editorials

CHICAGO'S MUNICIPAL TUBERCULOSIS SANITARIUM.

On February 16 the city of Chicago dedicated a great institution in which to fight the greatest scourge of mankind—The Chicago Municipal Sanitarium.

This institution, which is probably the finest and best equipped of any in the world of its kind, was made possible by the Glackin Law, and was realized because of the untiring energy of Dr. Theodore B. Sachs, whose persistent efforts finally overcame the many obstacles to be met in the engineering and building of such an institution.

It will now be possible for the tuberculous poor of Chicago to have as efficient treatment for tuberculosis as may be obtained. The value of this institution to the people cannot well be estimated. It will add many years to the average life of the tuberculous of Chicago, but far greater than this will be the benefits derived by the municipality in the prevention of contagion from this formidable disease.

There are, in connection with the Sanitarium, ten dispensaries, located in the crowded sections

of the city, where are examined, diagnosed, and treated tuberculous patients—of all stages. Many of the patients now treated by these dispensaries will be transferred to the Sanitarium, where a more efficient treatment may be given, and where the patient will have a better chance to regain his health and thus may again be a bread-winner.

The building of this institution is the first real effort of a municipality in Illinois to eradicate this disease, and the citizens of Chicago must be congratulated upon its achievement.

The Sanitarium is now open and patients will be received as fast as is possible.

A NEW DEPARTMENT.

With this issue we are starting a Department of Public Health. In it we will give the news items pertaining to health matters of the state and also try to keep the profession informed on the activities of the State Board of Health, as well as on legislative matters pertaining to the same subject.

We have always believed there should be a closer co-operation between the profession and the State Board of Health, and we know that the profession should have a better knowledge of the activities of the State Board than it has had in the past.

EFFICIENT QUARANTINE.

The Illinois State Board of Health has recently adopted a revision of the rules on quarantine. It has enlarged the list of quarantinable diseases, and insists on the enforcement of quarantine in all its details.

Efficient quarantine is the most potent factor in stamping out communicable diseases. Efficiency depends upon the rigid enforcement by the State Board of Health of the rules and regulations it adopts that are in accordance with the statutes. And the statutes authorize the State Board of Health to exercise such police powers as may be necessary to secure the efficient enforcement of its rules. However, the board does not desire to work hardships on the citizens, and seeks their hearty co-operation in the enforcement of its rules and regulations. And there is no speedier method of securing this co-operation than educating the people that efficient quarantine means the saving of human life, the relief of suffering and lessening the cost of living.

And the State Board of Health, also, realizes that the doctors in every community should be the leaders in insisting on efficient quarantine. They should be foremost in educating their clientele as to the advantages of quarantine, and they should realize that their opinions on medical questions are, or should be, accepted as authoritative by the people. They should, also, realize that the prevention of disease means increased wealth in a community, and that indirectly this will be to their own financial advantage.

The progressive physician, city or country, is the man who will engage his activities in all the medico-sociological problems of the day. He will be the leader in all movements which tend to the betterment of medical conditions, and the State Board of Health will welcome the co-operation of the rank and file of the profession, and will assist in every possible way in the campaign of popular education.

When it has been necessary for the State Board of Health to assume the responsibility of maintaining quarantine, the communities have been quick to see the beneficial results, and instead of opposing quarantine have demanded that the law be rigidly enforced. As an example, the recent epidemic of scarlet fever at Decatur could not be controlled by the local board of health, for various reasons, and the state assumed control, and after rigid quarantine was established the epidemic quickly subsided. Here the medical profession and the layman co-operated heartily, and were pleased with the results.

TIME IS MONEY.

As trite as the old saying may be, it does not appear that there are many physicians who ap-

preciate that time is money as might be the case. Too often is there a feeling to let well enough alone, rather than one which prompts an exercise of energy or inventive faculty to cut down the time required for a given job, and thus obtain better results.

In the commercial world corporations have what is known as efficiency engineers whose time and brains are devoted to devising ways and means for reducing operative expenses and at the same time maintaining if not actively promoting efficiency. To illustrate: one of Chicago's public service corporations having a million subscribers saves thousands of dollars monthly in the item of postage alone because of an operating system which makes it unnecessary to return receipts (for mail remittances) for bills rendered.

Today practically all big corporations have perforated bill heads unequally divided as to length of stub. On the longer portion of the paper appear the headings for itemizing the account, this slip to be retained by the party remitting. On this slip may be noted the manner of paying the account, as for instance by check, draft, express or postoffice order, date, etc. On the short slip will appear such items as the company may see fit to insert, its purpose being for identification of the account. It is to be torn off and returned with remittance.

Physicians might with advantage adopt similar methods of bookkeeping for economic reasons alone, to say nothing of the many other advantages. Think of the thousands of dollars in the item of postage alone that may be saved to the families of medical men if such a system were universally adopted by the profession. Thus far we have not taken into consideration the much

..... Examination Special Home Visits Office Visits Night Visits Consultation Obstetrical Surgical Operation Surgical Dressing Microscopical Examination Chemical Examination Blood Examination Urine Examination	<p align="center">TO JOHN C. SMITH, M. D., DR. MARSHALL FIELD ANNEX 25 EAST WASHINGTON ST</p> <hr/> <p align="center"><small>RETAIN THIS PORTION OF BILL FOR YOUR RECORDS. NO RECEIPT WILL BE RETURNED ON MAIL REMITTANCES UNLESS REQUESTED AT TIME OF PAYMENT</small></p> <table border="1"> <tr> <td align="center" colspan="2">FOR PATIENT'S RECORD</td> </tr> <tr> <td align="center" colspan="2">PAID BY</td> </tr> <tr> <td>CHECK NO. _____</td> <td>CHICAGO, _____ 191__</td> </tr> <tr> <td>P. O. ORDER _____</td> <td>M _____</td> </tr> <tr> <td>EXPRESS ORDER _____</td> <td></td> </tr> <tr> <td>BANK _____</td> <td></td> </tr> <tr> <td>DATE _____</td> <td></td> </tr> </table> <p align="center">FOR PROFESSIONAL SERVICES</p> <p>FROM _____ 19__ TO _____ 19__ \$ _____</p>	FOR PATIENT'S RECORD		PAID BY		CHECK NO. _____	CHICAGO, _____ 191__	P. O. ORDER _____	M _____	EXPRESS ORDER _____		BANK _____		DATE _____	
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TO JOHN C. SMITH, M. D., DR.
MARSHALL FIELD ANNEX
 25 EAST WASHINGTON ST.

DETACH THIS STUB AND ENCLOSE WITH
 MAIL REMITTANCE

MR. _____

\$ _____

valuable time that can be conserved for other purposes. It would do away with the needless waste of time required to receipt bills, hunt up envelopes, addressing, sealing, stamping and mailing same, all of which is an unnecessary loss of time, energy and money, a needless duplication which can and should be avoided.

The illustration appearing in this article gives in considerable detail all the items needed for the information of any one caring to adopt such a system of needed economy.

CHICAGO MEDICAL SOCIETY SPECIAL TO A. M. A. CONVENTION.

The official route of the Chicago Medical Society special train to the A. M. A. Convention, at San Francisco, in June, will be over the Denver & Rio Grande, through the wonderful Royal Gorge to Salt Lake, and the Western Pacific, through the Feather River Canyon to San Francisco.

This route is by far the most scenic in the West, and a stop-over will be made at all important places, including Colorado Springs and Salt Lake, long enough to see the principal points of interest, such as Pike's Peak, Salt Air Beach, Mormon Temple, etc.

The special will leave Chicago on June 17, 1915, while the route from Chicago to Denver will be decided later, and each member will be so notified. It is not important which road we take to Denver, *but it is important*, at your earliest convenience, to signify your intention of going, in order that your rooms and other accommodations may be reserved.

Remember, San Francisco will be a crowded city this year, especially in June, and you can get no better accommodations than through the Chicago Medical Society.

Through the Gregory Tours, we are able to procure the best of everything and be relieved of all travel worry. This tour includes:

First-class railroad ticket to San Francisco and return.

Pullman standard sleeper to San Francisco and return.

Transfer of member and checked baggage to and from hotel in San Francisco.

Seven consecutive days at Hotel Plaza in San Francisco (two in double room), including breakfast.

Seven admissions to Panama-Pacific Exposition.

Admission to twenty attractions within the Exposition grounds.

Transportation to Los Angeles and San Diego and return.

The total expense of this tour, as outlined, will amount to \$154.00 from Chicago. Each reservation should be accompanied by a deposit of \$10.00 and \$10.00 additional in thirty days. Do not put this matter off too long if you are expecting to take this trip.

Make all checks payable to Dr. R. R. Ferguson, 3923 N. Keeler avenue, Chicago.

Address all inquiries to the Gregory Tours, Lytton building, Chicago, where further information may be obtained. Telephone Wabash 5157.

THEIR STANDARD, "ACCURACY AND ETHICS."

A Physicians' Diagnostic Laboratory Association is being organized in Chicago and the surrounding territory, to give to the profession a laboratory with the highest standard possible, where "Accuracy and Ethics," will be the keynote; which will have a complete laboratory, equipped with every facility known to modern science a first-class X-ray equipment, where a clear cut negative is guaranteed or no charge; all under one roof, centrally located and under the supervision and direction of Dr. Franklin D. Smith and a corps of trained men, all graduates in their special analytical lines.

Dr. Smith was trained and schooled under Prof. F. G. Novy, of the University of Michigan, and was under Prof. Rowland E. Skeeel, of St. Luke's Hospital, Cleveland, Ohio.

The association will, besides having the above facilities, give a series of lectures which will be of great benefit to the profession, copies of which will be mailed to the members, on the following and kindred subjects: The interpretation of various laboratory reports and X-ray negatives; the proper method of taking various specimens and the transmitting of same to the laboratory, etc., etc.

Members may also consult with members of the staff at any time and post themselves on any pathological, bacteriological, vaccines and other subjects.

It is the opinion of the members of the profession who are endorsing this association that a great benefit will be derived by all who become members.

TUBERCULOSIS NOTES.

The Chicago Municipal Tuberculosis Sanitarium is the first institution of its kind which has a department for the care of the tuberculous prospective mother.

In examining both apices do not forget that normally there is a difference between them both by percussion and auscultation, higher pitched percussion and breath sounds of bronchial character in right apex. If left apex equals it in percussion and auscultation, almost positive a lesion exists there.

Early apical lesions will be overlooked if deep percussion is used.

Besredka has reported (*Zeits. f. Immunitätsforschung*, Band 21, Heft 1-5, 1914) his work on complement fixation in tuberculosis. Results:

1. Reaction positive in first period.
2. Reaction positive in most cases of second period.
3. Reaction partially positive or negative in third period.

Considering the dangers of the Calmette eye test for tuberculosis, it is a test that should be abandoned.

Bates, *New York Medical Journal*, believes that eye strain is a predisposing cause of tuberculosis, and claims to have cured cases of tuberculosis by correcting error of refraction.

A NEW WELFARE JOURNAL.

In another column there will be found an article copied from "Child Betterment and Social Welfare," depicting the danger of arsenical poisoning in children from fly poisons.

This little journal is published, as its name would imply, for the benefit of the children. Its editor is Dr. G. Frank Lydston, and contributing editors are Dr. George F. Butler, Dr. Gordon G. Burdick, Rev. William N. Wycoff, Dr. Lee A. Stone, and Dr. Anson Cameron. It is published by the Child Betterment Bureau, 60 W. Washington St., Chicago, and those interested in child welfare would do well to subscribe for it.

We hope to see it regularly on our desk.

SWAT THE FLY POISON PERIL.

Of forty-seven cases of arsenical poisoning of children reported from fifteen states from July to October, 1914, in thirty-four the children were three years old or less. In thirty-seven the children had drunk poisoned water from a saucer containing fly paper. In eight cases the children were poisoned by sucking the wicks in tin receptacles containing arsenic, sugar and water. In two cases the children were poisoned by sucking a sponge used to moisten these wicks in poisonous fly destroyers.

The similarity of the symptoms of arsenical poisoning to those of cholera infantum make it quite certain that there are a great many more cases than are reported. Cholera infantum, one of the most common ailments of very young children, is prevalent at the time these poisonous fly killers are most used.

Most of the children are too young to tell the cause of their illness and unless seen taking the poison, arsenical poisoning may not be suspected.

Arsenical fly killers are commonly placed within the reach of young children. As sugar is used with the arsenic for the purpose of drawing the flies, the arsenical fly killers in whatever form are extremely dangerous to children. Many more deaths are caused by them than were caused by the phosphorus match, which practically has been abolished because of the fatalities to children. No deadly poison is so commonly put within the reach of children as is arsenic for killing flies.

As there are effective and safe methods of killing flies there is no excuse for using poisonous fly killers of any kind. The use in the home of poisons of any kind is dangerous, but all other poisons combined do not present the same dangers to children as do the poisonous fly killers. The little ones should be protected from this really grave and exceedingly common danger.—*From Child Betterment and Social Welfare.*

Correspondence

A DENIAL.

Chicago, Ill., Feb. 1, 1915.

To the Editor: In connection with a sensational report of an operation under the so-called "twilight sleep," there has appeared in various newspapers a statement purporting to be by myself which would imply, not only that I was present at the operation, but that I unequivocally

ally endorsed the method. The following appeared in the New York World, Jan. 28, 1915:

"After this demonstration," Dr. G. Frank Lydston said, "twilight sleep for men will become common. The use of this anæsthetic will no longer be limited to childbirth cases, but women as well as men will benefit by it generally.

"This operation was important, and I am glad to express my professional opinion that it was completely successful."

I desire to state; first, that I was not present at the aforesaid operation; second, I never have been interviewed upon the subject nor, up to the present moment have I expressed for publication any opinion of the so-called "twilight sleep"; third, my present attitude toward the revival and sensational nomenclature of the employment of scopolamine-morphine hardly would comport with the sentiments expressed in the statement falsely attributed to me.

Very truly,

G. FRANK LYDSTON.

Public Health

FOR THE HEALTH OF THE COMMON-WEALTH.

STATE BOARD OF HEALTH ASKS FOR MEN AND MONEY TO SUPPRESS PREVENTABLE DISEASES.

ILLINOIS NOW SPENDS LESS THAN ONE-HALF CENT PER CAPITA PER YEAR FOR HEALTH PROTECTION.

The Illinois State Board of Health, awake to the necessity of devoting greatly increased attention to matters of public health and of bringing Illinois up to the level of other progressive states of the Union in this vitally important respect, is asking the legislature for an appropriation for the next two years amounting to \$412,752, an increase of approximately 57 per cent over the amount appropriated for the biennium now closing.

Practically all of this increase is for development and enlargement of the service along lines of public health protection, no part of it for increased salaries, and very little of it is for the increasing work of medical registration.

Heretofore fully 80 per cent of the State Health Board's appropriations have been devoted to the work of medical registration and only 20 per cent to activities of a purely public health character. In the budget for 1915-1917 these proportions are reversed—80 per cent for health protection and 20 per cent for registration activities—due care being taken to avoid crippling of the registration service, in fact, increased efficiency in this division is provided for.

Along the lines of public health service development, the Board deems the following urgently required: A State Sanitary Engineer, an Epidemiologist, and eight District Health Officers, a Dairy Supervisor, and a Director of Publicity and Education. All of these and their necessary assistants are to be full-time employees.

The budget also contemplated the establishment of branch laboratories in the northern and southern extremities of the state for the purpose of facilitating diagnosis of diphtheria, typhoid fever and, possibly, tuberculosis, and it provides for the addition of anti-smallpox vaccine to the list of prophylactic agents which now are distributed free by the state.

The total appropriations for the State Board of Health at the present time for the dual work of medical registration and public health protection approximate \$120,000 per annum. From this deduct the revenue derived from medical registration, about \$30,000 per annum, which amount in its entirety goes into the State Treasury, and we have a net expenditure of \$90,000. Therefore, Illinois, with a population of nearly six million people, appropriates for its State Health Department the niggardly sum of 1½ cents per capita, and of this amount less than ½ cent per capita is for health protection.

If "public health is purchasable," and it surely is, Illinois is buying mightily little of it. The continued prevalence of smallpox, scarlet fever, diphtheria, typhoid fever, and other preventable diseases throughout the state is in a very large measure attributable to this penurious policy.

The Illinois State Board of Health should be given all and more than it is asking for from the Forty-ninth General Assembly.

The health of the people stands far above all other considerations, it is an asset of paramount importance, it must be effectively safeguarded.

ILLINOIS STATE BOARD OF HEALTH REVISES CONTAGIOUS DISEASE RULES.

STRICTER QUARANTINE REQUIRED GIVES LIST OF
DISEASES WHICH NOW ARE REPORTABLE.

The State Board of Health has very recently formulated new rules for the control of communicable diseases which, when published and distributed, will be operative throughout the state of Illinois.

These rules set forth the diseases which are to be reported to local health authorities and by such authorities to the State Board of Health, by whom reports shall be made, quarantine requirements, placarding of infected premises, precautions which must be observed by physicians and attendants, handling of suspects, exposures and carriers, school exclusions, restrictions placed upon handlers of milk and other foodstuffs, disinfection and disposition of the dead.

Copies of these rules will be sent to every health officer in the state as soon as received from the printer. For information of the medical profession a synopsis of the rules will appear in the next issue of this Journal.

Under the new rules the following diseases are made reportable, the physician or other attendant, the parent or guardian, and the householder in the order named being held responsible for reporting same to their local health authorities.

Diseases now reportable in Illinois:

Actinomycosis	*Plague, Bubonic
Anthrax	*Poliomyelitis, Acute Anterior (Infantile Paralysis)
Chickenpox	Puerperal Septicemia
*Cholera Asiatica	Pellagra
"Continued fever"—over 7 days	Rabies
*Diphtheria (Membranous Croup)	Rocky Mountain Spotted-fever
Dysentery (a) Amebic (b) Bacillary	*Scarlet Fever
German Measles	Streptococcus (septic) Sor
Glanders	Throat
Hookworm Disease	*Smallpox
Leprosy	Tetanus
Malaria	Trachoma
Measles	Trichinosis
*Meningitis, Epidemic	Tuberculosis (specifying organ affected)
Cerebrospinal	*Typhoid Fever
Mumps	*Typhus Fever
Ophthalmia Neonatorum	Whooping Cough
Paratyphoid Fever	*Yellow Fever

Failure to comply with these rules is punishable by a fine of not exceeding \$200 for each offense, or imprisonment in the county jail not

to exceed six months, or both, in the discretion of the court.

DECATUR'S EXPERIENCE WITH SCARLET FEVER COSTLY.

SHOULD BE A LESSON TO OTHER TOWNS IN ILLINOIS.

On account of a rapidly developing epidemic of scarlet fever and the absence of a properly organized city health department to combat it, the city officials of Decatur, Ill., found it necessary to appeal to the State Board of Health for assistance.

Responding to the appeal, the state health authorities took charge of the situation on February 5, serving notice upon the officials and citizens of the rules and regulations to be strictly observed while the state officers were administering the health affairs of the town.

An early survey of the situation showed the presence of one hundred and twenty-seven known cases of scarlet fever in the town and pointed to the probability of a large number of roaming unrecognized cases as the probable cause of the spread of the disease. Quarantine in most instances was a farce and until the local medical society interested itself in the situation, little or nothing was done toward control.

With the coming of the state officials quarantine of the most rigid character was imposed, and following several arrests for violation of the rules, observance of quarantine has been remarkably good, notwithstanding the many hardships entailed.

Since the State Health Board assumed charge the weekly totals of new cases has been cut from 27, for the week ended February 5, to a total of 8, for the week ending February 27.

Decatur's experience, costing that community many thousands of dollars, should be a lesson to every other town in Illinois which is now practicing the false economy of getting along without an efficiently organized health department.

Needless to say, the one point upon which the business and professional men and the mothers of Decatur are now agreed and determined, is the immediate securing of a competent full-time medical health officer.

*Diseases starred must be immediately reported to the State Board of Health. Other diseases are to be reported at close of each week.

FOR THE PREVENTION OF BLINDNESS FROM OPHTHALMIA NEONATORUM.

ILLINOIS STATE BOARD OF HEALTH FURNISHES
PROPHYLACTIC AGENT FREE.

OPHTHALMIA NEONATORUM NOW A REPORTABLE
DISEASE.

Silver nitrate in one per cent solution is now being distributed free by the Illinois State Board of Health with a view to encouraging its use much more generally in the eyes of newborn children, and thereby reducing the prevalence of ophthalmia neonatorum.

This prophylactic agent can now be obtained in most convenient form for use at any of the 350 free distributing stations (antitoxin agencies) of the State Board of Health, located throughout the state.

The Illinois silver nitrate ampule is the simplest, cheapest and probably the most efficient of any yet marketed. It was developed by the Lederle Laboratories of New York following suggestions offered by Dr. C. St. Clair Drake, Secretary of the Illinois State Board of Health.

In this connection attention is called to the fact that in Illinois ophthalmia neonatorum is now a reportable disease, reports of every known or suspected case being required to be made to local health authorities within twenty-four hours after discovery, failure to report being punishable by a fine not exceeding \$200, or six months in the county jail, or both, in the discretion of the court.

STATE HEALTH BULLETIN TO RESUME ISSUE.

The State Board of Health will resume publication of its monthly bulletin, beginning with an issue in March.

Publication of a monthly bulletin was discontinued in 1913 and has not been resumed through lack of appropriation for this purpose.

The revived bulletin will in many particulars be a radical departure from the former style.

The mailing list, recently revised, contains some 12,500 subscribers. A few more can be accommodated. It will be sent gratis to residents of Illinois.

NEXT STATE BOARD EXAMINATION.

The next examination for candidates for medical license in Illinois will be held May 13, 14, 15, 1915, at the Coliseum Annex in Chicago.

Application for admission for the examination must be filed with the Secretary of the State Board of Health at Springfield, Ill., not later than May 1.

ILLINOIS STATE CIVIL SERVICE COMMISSION, NOTICE OF EXAMINATION, FOOD BACTERIOLOGIST, APRIL 3, 1915.

On April 3, 1915, an examination will be held at Anna, Carbondale, Chicago, Dunning, East St. Louis, Elgin, Jacksonville, Kankakee, Lincoln, Macomb, Mt. Vernon, Peoria, Pontiac, Springfield, Urbana and Watertown, to provide an eligible list for the position of Food Bacteriologist in the Chicago office of the State Food Commission.

The salary at present is fixed by law at \$1800 a year. The limits recommended by the State Civil Service Commission are \$150 to \$175 a month.

The examination will be open to non-residents as well as residents of Illinois over 25 years of age.

The duties of the position involve making bacteriological examinations (and interpreting the results of such examinations) of milk, ice cream, eggs, meat, tomato products, etc., in accordance with the dairy, food and sanitary laws. The applicant should be able to state his opinions briefly and accurately as he may be called upon frequently as a court witness. Education equivalent to graduation in science from a college of recognized standing is required, as well as some knowledge of anatomy, histology and pathology and some training in animal experimentation. The statement is made from the State Food Commissioner's office that the person employed in this position will be given time to take work in the various medical schools or universities of Chicago so that he may acquaint himself with those subjects with which he is not thoroughly familiar.

In general the examination will be divided and the parts weighted as follows:

Training and Experience.....	4
Theoretical and Applied Bacteriology.....	6

This circular contains all the information to be given out. Application blanks may be secured by addressing the

STATE CIVIL SERVICE COMMISSION,
Springfield, Ill.

"The greatest influence on health is exerted by those things which we most freely and frequently require for our existence, and this is especially true of water and air."—Aristotle.

THIS SPACE RESERVED FOR PERMANENT STATE MEETING ANNOUNCEMENTS.

To the Members of the Section of Eye, Ear, Nose and Throat:

As you know, the meeting of the Illinois State Medical Society is to be held May 18, 19, 20, at Springfield.

We are now getting up the program for the section. If you contemplate presenting a paper before that section, we should like to have you advise us of such action at once. Also please send us the subject of your paper at the same time.

We should like to urge upon you this year that interesting clinical cases be brought to the meeting by the members of the section. Also, that this year, as in the past, surgical clinics will be held at Springfield and the members of this section are asked to arrange for any such cases with the officers of the section.

We trust that you are going to make it a point to be with us, and we should like to know of your intentions at the earliest possible time.

Most cordially yours,

JOSEPH BECK, M. D., Secretary,
108 North State St., Chicago.

C. B. WELTON, M. D., President,
Peoria.

To the Members in General:

The Committee on Arrangements would like to announce that it is now prepared to make any and all reservations as requested. You are asked to give in detail the number in your party, whether you desire hotel or private family accommodations, the probable length of your stay, and to confidently expect an early reply to your communication.

The Committee wishes to correct the statement appearing in the last announcement to the effect that the University of Pennsylvania would hold a reunion at the coming State meeting. It should have read Jefferson Medical College, which institution is accustomed to getting its Alumni together regularly every year. If this statement spurs the "Penn" graduates to "do likewise" the desired effect will have been attained.

For several logical reasons the spacious Masonic Temple, in closer proximity to the Leland Hotel headquarters, has been obtained, in which to hold the sessions at the coming meeting, instead of at the Y. M. C. A. Building, as originally planned. This very desirable change will prove an added inducement to the attendance, as conditions are much more ideal. The four floors of the Temple will be given over to the Society and expedite matters materially. Lunch and dinner will be served in the basement to all who care to eat without leaving the building.

The Committee wishes to repeat the announcement that it will welcome any and all suggestions for the welfare of this meeting.

Address all communications to

H. C. BLANKMEYER, M. D., Chairman,
Springfield.

Auto Sparks and Kicks

CARE OF PUMPS.

Pumps operating with leather-faced pistons often are made more efficient by the use of neats-foot oil. A few drops of this oil placed on the leather plunger will swell the leather and make it hold compression.—*Motor Age*.

RADIATOR WATER.

Soft water should be used in the cooling system and not hard water. Hard water contains more or less mineral matter, which will cause deposits in the radiator and water jackets. Especially is this true if the motor has a tendency to overheat and the water to boil.—*Exchange*.

LOCATING THE KNOCK.

A knock about a complicated piece of machinery is often a very elusive thing, and it becomes expensive hunting for it. Locate it as closely as possible by eliminating as many things as you can. If the knock persists with the clutch disengaged, you can feel pretty certain that it is in the engine. If you hear it only when the vehicle is running, it may not be the engine at all. You can load the engine by holding something against the flywheel as a brake. If convenient to disconnect parts, like the pump or the magneto, or the fan, and still test for the knock, this will avoid examination of these things for the possible cause of trouble. Notice whether or not the knock is present immediately after the engine starts or whether the engine must get hot first. If it occurs only when the engine is hot, it may be preignition. If by elimination you can cut out practically everything except the bare engine, you can remove the connecting rods and pistons, operating but one or two at a time, until you locate which one is making the trouble. It will probably not be possible to eliminate the cam shaft, and it is possible that the knock is around the cams or valve lifters, or in the teeth of the gears.—*Trade Journal*.

CAR GOES 28.7 MILES ON GALLON OF GASOLINE.

Judged by C. A. C. Committee.

Surprising results were obtained recently in Chicago, when in a distance test on the boulevards, a 1915 big six went 28.7 miles on a gallon

of Red Crown gasoline. The test was made to demonstrate the fuel economy of high test gasoline, by the technical committee of the Chicago Automobile Club.

All through the trip the clutch was not slipped, except when traffic congestion made it necessary. The dash adjustment on the carburetor was disconnected, and in order that the test be a fair one, the fan was in operation throughout the run.

Next came the acceleration test. With the carburetor adjustment the same as during the economy run, the car was driven from standing start to thirty miles an hour in 12 4-5 seconds. The flexibility test saw the car run at four miles an hour, then speeded up to forty-four.

This test proves that the six is not an excessive fuel consumer, where the best gasoline is used.

OWNER LIABLE, THOUGH NOT IN CAR.

Another severe case, holding an automobile owner responsible for injuries when his car is driven by a third party, was recently decided in Massachusetts.

A motorist was entertaining two men and two women as guests at his summer cottage. The women asked for an automobile ride but the owner refused and (the words of the learned court) they then "kept teasing" him and did "quite a little coaxing" until finally he said: "Well, you can go if you want to, but do not be gone long," and took the key from his pocket with which to unlock the switch and threw it down. One of the men guests had a chauffeur's license and knew how to operate the car. He took the women out and, through carelessness, injured another person who sued the owner.

The owner testified that he did not want them to go, that he knew his guest would drive and thought they would go just a little way and come back, but denied that the guest was acting as his agent in taking the women out.

The court held, however, that although if the defendant had merely loaned his car, or permitted it for use, in which he had no interest, he would not be liable; still, as the women were his guests, and he told them to return, the relation of host and guest existed during the ride and it must be presumed that the driver had implied authority to act as the owner's agent, and the owner must therefore stand responsible for the injuries caused by him.—*Campbell v. Arnold*, 106 N. E. (Massachusetts), 599.

Society Proceedings

ALEXANDER COUNTY.

The Alexander County Medical Society met in regular session in the Commercial Clubrooms, Cairo, Ill., February 18, 1915. The president, Dr. G. H. McNemer, was in the chair and the following members were present: Drs. Dunn, Barrows, Grinstead, McManus, Fields, Gassoway, Dodds and Flint Bondurant. Dr. J. F. Leslie, who had recently moved to Cairo from Mounds, Ill., was a guest of the society. Under clinical cases Drs. Grinstead and Flint Bondurant reported cases of "Popliteal Aneurysm," and Dr. Gassoway reported case of "Gunshot Wound of Chest."

The paper of the evening was that of Dr. Barrows on "Infantile Convulsions." He gave a thorough and interesting discussion on this condition with which we so often come in contact.

Dr. McManus led the discussion, which was generally participated in by all the members, after which the society adjourned.

FLINT BONDURANT,
Secretary.

CHRISTIAN COUNTY.

The Christian County Medical Society met in the county court room at Taylorville Jan. 21, 1915, at 2 p. m., and was called to order by President Dr. D. K. Cornell and after the minutes were read and approved the following program was presented:

"Nitrous Oxide-Oxygen Anoci Association in the Practice of Surgery," Dr. Don W. Deal of Springfield.

"Perineal Injuries and Their Repair," Dr. R. C. Danford, Pana.

"The X-Ray in Medicine and Surgery," Dr. F. S. O'Hara, Springfield.

"The Law and the Doctor," Dr. J. H. Miller, Pana.

These were all splendid papers and the society was well repaid for their attendance.

The newly elected officers are: President, Dr. R. C. Danford, Pana; vice-president, Dr. George Tankersley, Owaneco; secretary-treasurer, Dr. S. B. Herdman, Taylorville; delegate, Dr. Walter Burgess, Pana; alternate, Dr. Jesse P. Simpson, Palmer; legal committee, Dr. D. F. Marton, Taylorville; Public Health Committee, Dr. T. A. Lawlor, Taylorville; censors, Drs. Armstrong, Nelms and Carroll, all of Taylorville.

The attendance was only fair, but there was no complaint and with the new staff of officers we will have the best of meetings in the future and keep up the standard of the association.

D. D. BARR, Secretary.

CLARK COUNTY.

Society met in regular session at Marshall, Ill., Feb. 11, 1915, at 2 p. m.

Members present: Johnson, Mitchell, Rowland, McCullough, S. W. Weir, Prewett, Pearce, Marlow and L. J. Weir.

R. A. Mitchell reported a case of typhoid fever in mild form beginning some twenty days after third dose of vaccine, which elicited quite a discussion.

Dr. J. C. R. Wettstein of Effingham read the paper of the meeting on "Tuberculosis," describing the germs, nodes of infection and especially the early diagnosis and the importance of same, which require a systematic history of case and physical examination, tuberculin test, especially the skin reaction properly interpreted, as symptoms; Malaise, dry, hacking cough, fever, rapid pulse, etc., as signs, lagging of affected apex in respiration, spasm of trapezius and sternocleido-mastoid muscles. Early treatment means cure in 80 per cent of cases. Is slow and tedious and requires co-operation for a long time.

The paper was well received and a lengthy and interesting discussion was participated in by all present. The points were principally on treatment or rather the management of consumptive cases.

Dr. Wettstein conducted a clinic, presenting a woman with cough, rheumatism seven years ago for months, constipated, temperature 100 to 101 of evenings for some time past, lost some weight past six weeks. Many points made in the paper were demonstrated; right apex was affected.

Upon motion it was voted to instruct the president to appoint a program committee to prepare two or three provisional programs for next year and present same at next meeting.

Society adjourned.

L. J. WEIR, Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

Clinical Congress for the Study of Local Spinal and Scopolamine-Morphine Anaesthesia

Bertha Van Hoosen, Chairman.

January 26, 8:15 P. M.

Subject—Spinal Anaesthesia.

1. Spinal Anaesthesia in General Surgery, W. Wayne Babcock, Philadelphia.

2. Spinal Anaesthesia in Gynecology, H. J. Boldt, New York City.

3. Sacral Anaesthesia (extra dural injection of cocaine as used in Freiburg Frauen Clinic), Kurt T. Schloessing, Freiburg, Germany.

4. Spinal Anaesthesia as Used in South America, Professor Debayle, University of Nicaragua.

Discussions, Arthur Dean Bevan, John B. Murphy, B. C. Corbus.

January 27, 8:15 P. M.

Subject—Local and Scopolamine-Morphine Anaesthesia in Obstetrics.

1. Cæsarian Section Under Local Anaesthesia, J. Clarence Webster.

2. Scopolamine-Morphine in Abnormal Obstetrics, John Osborn Polak, Brooklyn, N. Y.

3. Scopolamine-Narcophine Anaesthesia as Used

in Freiburg Frauen Clinic, Kurt E. Schloessing, Freiburg, Germany.

4. A Psychological Study of "Twilight Sleep" by Means of the Giessen Methods, Miss Elizabeth Ross Shaw.

5. Scopolamine Amnesia in Labor, W. Francis Wakefield, San Francisco, Cal.

Discussions, J. B. DeLee, Henry F. Lewis, Charles S. Bacon, Charles Paddock, Leslie Frankenthal.

January 28, 8:15 P. M.

Subject—Local and Scopolamine-Morphine Anaesthesia in Surgery and Gynaecology.

1. Scopolamine-Morphine Anaesthesia, M. G. See-
lig, St. Louis, Mo.

2. Scopolamine-Morphine Anaesthesia in Abdomi-
nal Surgery, Emil Ries.

3. Local Anaesthesia in Thyroid Surgery, A. E.
Hertzler, Kansas City, Mo.

4. Local Anaesthesia in General Surgery, M. L.
Harris.

5. Local Anaesthesia and Its Use in Prostatectomy,
Carroll W. Allen, New Orleans, La.

Discussions, Clifford U. Collins, Peoria, Ill.; Paul
F. Morf, Paul Oliver.

*Joint Meeting Between the Chicago Medical Society
and the North Shore Branch.*

February 3, 1915.

1. Report of two cases of the Immediate Trans-
plantation of Bone in Compound Comminuted Frac-
tures of the Tibia and Fibula, the Broken Fragments
being used for the Transplants. Exhibition of cases
and lantern slides.

Discussion, Frank Byrnes, Jacob Frank, J. J. Mc-
Guinn.

2. Diagnosis and Treatment of the More Important
Diseases that Frequently Involve the Mouth and Jaws.
Discussion, William H. G. Logan, Joseph Beck.

3. Some Ideas about the Treatment of Traumatic
Joint Affections from a Masseuse's Point of View.
Discussion, Hugo Ad. Oldenborg, John Ridlon.

Regular Meeting, February 10 1915.

1. The Complement Fixation Diagnosis of Rabies;
Methods of Preparation of Reagents; Technique and
Results, J. F. Biehn.

Discussion, F. P. Machler, C. A. Zell.

2. Wassermann Reaction in the Feeble Minded,
H. J. Freemmel, Lincoln State School and Colony,
Lincoln, Ill.

Discussion, W. T. Mefford.

3. The Case for Dementia Precoc, Bayard Holmes,
Sr.

Discussion, Meyer Solomon.

*A Joint Meeting Between the Chicago Medical Society
and the United States Live Stock Sanitary
Association, February 17, 1915.*

1. The Metabolism of the Tubercle Bacillus, Prof.
Arthur I. Kendall, Department of Bacteriology, North-
western University Medical School.

2. Cancer of the Breast (Lantern Slides), Dr. W.
L. Rodman, President-Elect American Medical Asso-
ciation.

3. The Spread of Disease Through Garbage, Dr.
V. A. Moore, Cornell University, Ithaca, N. Y.

4. Insects as Carriers of Disease, Prof. D. K. Mc-
Millan, Assistant State Entomologist, University of
Illinois.

5. Trichinosis, Dr. B. H. Ransom, Zoologist, Bureau
of Animal Industry, Washington, D. C.

Regular Meeting, February 24, 1915.

1. The Pre-Institutional Care of the Insane, C. C.
Ellis, Chicago State Hospital.

Discussion, C. B. King.

2. The Intra-Nasal Opening of the Frontal Sinus
for Chronic Suppuration, Otto T. Freer.

Discussion, J. Gordon Wilson.

3. The Harrison Anti-Narcotic Bill; What Physi-
cians Must Do to Conform to the Act, Julius F. Smic-
tanka, Collector of Internal Revenue, Chicago.

Discussion, Alfred S. Burdick, Charles Truax.

ENGLEWOOD BRANCH, C. M. S.

The Fourteenth Annual Banquet and Ladies' Night.

The fourteenth annual banquet and ladies' night
was held on the evening of January 20, 1915, at the
Midway Gardens. The event goes down in the his-
tory of the branch as a brilliant success.

Time nor space permit of a detailed account and
suffice it to say that everybody had an enjoyable time
and appeared perfectly satisfied with the grand work
done by the banquet committee, of which Dr. J. A.
Waska is chairman.

The menu was very good and served in excellent
style. The entertainment was unique and, we believe,
thoroughly enjoyed and appreciated. There was some-
thing doing all the time and there was not a dull mo-
ment. Money was not spared and the professional en-
tertainers were the best that could be obtained,
each an artist in his or her line.

Dolly Randolph's Orchestra Comique, composed of
members of the Englewood Branch, was a grand suc-
cess and the hit of the evening. The hat rack trom-
bone solo by Dr. Webber, the garden hose and water
spout duet—"tuba and saxophone"—by Drs. Myers
and Lovewell, and the clothes rack harp solo by Dr.
Mundt were the stellar performances of great musical
stars and were loudly applauded. Dr. Waska, as high
chief mechanic, was a great success and the or-
chestra, under the capable leadership of Miss Ran-
dolph, covered itself with glory. Those who missed
this event missed a rare treat and those who came
enjoyed themselves immensely and felt amply repaid
for coming.

We owe a vote of thanks to the banquet committee.
There were over two hundred present.

ARTHUR G. BOSLER, Secretary.

Regular Meeting, February 2, 1915.

This meeting was held at the Englewood Hospital. President Dr. Joseph Sherlaw presided and the following program was presented:

1. "Relaxation of Muscles in the Treatment of Fractures," A. J. Graham.

2. "Treatment of Fractures by the Use of Plates and Other Materials," F. A. Lofton.

Both of these papers were well written, very instructive and interesting.

Immediately preceding the papers Dr. O. F. Scott showed a case of bone regeneration following a gunshot wound of the lower third of the leg. X-ray plates taken shortly after the injury and others taken one year later were exhibited. The patient has a very useful limb.

The discussion was opened by Dr. Paul B. Magnuson, who stated that he believed that too much hardware was being used in bone operations. He then recited his experiments on animals and also gave his experience in fifty cases. He uses ivory screws and plates. For oblique fractures he uses ivory screws. These screws are the same size as the hole drilled in the bone, and being the same size cause no irritation. Where a screw of larger size than hole is used an irritation is set up and this, Magnuson believes, leads to infection. He handles the bone with his gloved hand and fingers and has had no trouble with infections. In transverse fractures he uses ivory plates. These plates are short, being from $1\frac{1}{2}$ to $1\frac{3}{4}$ inches long, and cause very little traumatism. With a specially devised clamp the bones are held in position. With two parallel circular saws, set at the exact width of the plate, a slit is cut in the bones. Into this the ivory plate is placed and is held in position by an ivory peg. By this method the bones are firmly held in position. In the case of the femur the entire limb can be raised by the heel. The patient is put to bed and nothing is used save a few sand bags. Magnuson, however, believes it wise to give the limb extra support by the use of external splints. The ivory is absorbed. Magnuson concludes the whole is a matter of applying correct mechanical principles and that animal materials should be used.

The discussion then became general and quite animated. Half an hour after the meeting closed there were still a dozen or more discussing.

The night being a good one to stay at home, our attendance suffered considerably, there being only 49 present.

ARTHUR G. BOSLER, Secretary.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular Meeting Held October 29, 1914.

The president, Dr. Otto J. Stein, in the chair.

Case of operation for carcinoma localized within the larynx.

Dr. Otto J. Stein presented a patient, a man, who was operated on about two weeks ago for a carcinoma, well localized on the right vocal cord, occupy-

ing the right anterior half, the anterior commissure, and a small portion of the left vocal chord; also slightly subglottically. This case was diagnosed by the usual method of taking out a piece of the endolaryngeal route, and followed in a couple of weeks by the laryngo-fissure. There was nothing unusual about the operation. However, there were a couple of points he wished to call attention to. First, he thinks that wherever it is possible to operate under a local anesthetic it is advisable to do so. He used the combined method in this case, as he has previously in a few cases similar to this one, by using ether for the introduction of the tracheotomy tube, and then immediately following with the rest of the operation by local anesthesia. In this case he resorted to a method never before used in operating by himself, namely, anesthetizing the larynx by injecting both the superior laryngeal nerves. This gave perfect anesthesia, so that he could work with absolutely no reflexes whatsoever during the entire operation, with the patient awake.

He also did another thing, which he had never done before, and which he thinks of advantage, namely, using an unusually high incision, away up to the hyoid bone, in this way avoiding the severing of the cricoid. That evidently has an advantage in the process of healing. It gave him all the access he wanted to the interior of the larynx, plenty of room without any trouble, and it also gave a support afterwards which seems to have hastened healing remarkably. This patient has progressed so remarkably that one would hardly know any such operation had been performed. He has had no disturbances in any way. He is getting some voice back. There is a fibrous band forming, where the right cord was taken out, back to the vocal process, and over the anterior quarter of the left vocal cord.

Dr. Charles M. Robertson asked Dr. Stein what condition was present in the commissure?

Dr. Stein replied that there were granulations there. It was too early for any recurrence.

DISCUSSION.

Dr. J. R. Fletcher had seen the operation and was delighted with the manner in which Dr. Stein had conducted the anesthesia. The patient made no manifestation of any consciousness of pain during the entire operation. He was conscious and lay there as quietly and serenely as though nothing were being done. There was almost no hemorrhage, and one could see the field of operation very well.

Dr. J. Gordon Wilson asked Dr. Stein what he injected.

Dr. Stein replied that he had asked for a one-half per cent. novocaine solution, but was told afterwards that he had been given and had used a one per cent. novocaine solution. Dr. G. P. Marquis asked if there was any hemorrhage following the operation, to which Dr. Stein replied that there was a little.

Dr. Joseph C. Beck has had some experience with the method of injecting the superior laryngeal in operations upon not alone laryngo-fissure, but also the operation of laryngostomy in a healed-out syphilitic case, in which he did the complete operation of severing the larynx, removal of the tissues within the scar tissue, and the introduction of up and down tube, with absolutely no cough or reflex, whereas in other manipulations on this patient, thoroughly cocaineizing the interior of the larynx, it had been practically impossible to do anything for him at all. He was very irritable. That

method of anesthesia in larynx operations, he believes, is coming more and more into vogue, even in major operations, as laryngectomy. The combined anesthetic, however, he would call the injection of this blocking method, plus the general anesthesia, which has not the purpose only of making the patient insensitive, but further preventing the shock following the operation. He believes it is not only in the larynx that we should think about the nerve blocking, but also in operations on the nose and elsewhere in the region of operation. In other words, coming to the principle of Crile, of anoci-association. The book recently published by Crile on that subject is most interesting and very valuable to men working in the department of laryngology.

In regard to the question of this procedure for carcinoma, he felt that question should be discussed, namely, as to the value of laryngo-fissure in carcinoma, as a cure for the disease.

He believes that when the diagnosis is made of a carcinoma within the larynx, the surgeon should be prepared to remove the larynx, because the splitting of it and the laryngo-fissure produce probably implantation and secondary carcinoma outside. We know that Semon, St. Clair Thompson, Ballenger, and others, have had wonderful successes with laryngo-fissure. The speaker has seen a few of these, and has also done a few. However, recurrence is very common in his practice of it.

Dr. William L. Ballenger has also had some experience with this method of anesthesia. He had been in Crile's clinic, together with some of the other members of this society, and had seen him do his preliminary operation in total removal of the larynx. He does it under the blocking method. Since then the speaker has tried it a few times in laryngo-fissure and total removal of the larynx, and found it perfectly satisfactory, as it was in Dr. Stein's case. As to whether the operation for carcinoma of the larynx is successful or not, he has four cases living on whom he operated, one two years ago, and a few months ago this man was perfectly well. When he was in Seattle three years ago last September, he operated on a case, doing the operation of laryngo-fissure. This patient, a year ago, was reported as being perfectly well. Four years ago he performed a total removal of the larynx—not, however, using this method of anesthesia, but by general anesthesia. This patient is perfectly well. There was also another patient down the state on whom he operated three years ago. This patient is still living and apparently cured. So the question comes up, whether or not these operations are successful. The speaker is of the opinion that they are successful. A relatively good per cent. of his patients are still living, three or more years after operation.

Dr. Charles M. Robertson has certain rules that he lays down in operating on cases of this type, which are about as follows: There are four or six types of cases which we are called to treat. If the growth is absolutely intrinsic and does not affect the perichondrium, a laryngeal fissure is indicated. If the perichondrium is affected, the case calls for complete laryngectomy. If the glands outside of the larynx are affected, there is no use operating at all; the disease has already gone too far. The only thing to do in a case like this, unless we wish to experiment and see how long the case will last by operative interference, is to do a tracheotomy and let the patient be as comfortable as possible so long as he lives.

One carcinoma is different from another carcinoma, although the microscope may show the same findings in both cases. There is a lessened resistance that we have to take into consideration. Even that is questionable, because one case that will look as though the resistance is absolutely at par will go like wildfire; another case, in which the resistance looks *nil* will last for an indefinite period of time. While in London this summer he saw a case of cancer of the top of the larynx, in which the upper part of the larynx, the epiglottis and tonsil were involved. While in the hospital this man was taken with erysipelas, and when he recovered the cancer was well. The speaker saw him after two years, and the throat looked normal. He also saw a case of sarcoma which was cured in a similar way. That would bring up the question of injecting

these cases with the streptococcus serum, but so far as he has been able to learn this has not been very successful.

Dr. Beck asked Dr. Robertson if he meant Coley's serum.

Dr. Robertson replied that he did not mean Coley's serum; he meant simply a streptococcus serum. He does not think Coley's serum is good. He has not seen anyone who has any faith in it except Coley.

The matter of operating on these patients under general anesthesia would, in his opinion, be very greatly assisted by the blocking off of the superior laryngeal, because the reflex in the larynx is intense, and cocaine will hardly do even in the cases that are not very sensitive. In years gone by he has seen suggestion do away with reflex in the larynx, and that, with cocaine, will sometimes do very well. You can relieve the reflex by suggestion, but you cannot relieve it with cocaine.

He has several cases in town where he had done laryngeal fissure, and he is very much inclined to be in favor of laryngeal fissure, even as a preliminary step to complete laryngectomy, because in looking at the larynx from above you get a perspective, and cannot tell the extent of the growth. It may extend down the larynx to a considerable extent beyond the cord. It also is very prone to affect the esophageal wall, and where this is the case, his experience, and the reading he has done, would indicate that these cases are already beyond the scope of the surgeon. Where the epiglottis and the base of the tongue are already affected, the case is absolutely hopeless.

Regarding operation on these cases: In the type of case reported, for instance, Dr. Robertson always likes to follow the enucleation by the use of the actual cautery. He burns them with the Paquelin right to the cartilage. You might think there would be quite a lot of reaction from that type of treatment, but there is not. When he first commenced that method, he put in a tracheotomy tube for fear the patient would develop an edema of the epiglottis, but has never seen this occur. He, therefore, discontinued the use of the trachea tube.

Dr. Robertson has not had the wonderful experience that Dr. Ballenger said he has had. He has had cases live eighteen months, but that is the longest, after a total laryngectomy. The late stage of the cases may determine the longevity to a marked degree, as they are usually too far advanced at time of operation to promise good end results. His last case died of cerebral embolus the second day. He thought it was a very favorable case, and had expected to see the man get well. The more he sees of cancer—and he has seen considerable of it—the more helpless he thinks we are. Cancer, in his opinion, is a disease that is broader than the tumor. It is a disease that is absolutely in charge of the entire system before the stimulation of the cell commences, and when we operate on a cancer of the throat that is absolutely intrinsic, we may have resistance enough to overcome the condition of the blood, so that the disease will be alleviated or arrested, but it seems to him that when tissues commence to be stimulated and piled up the case is already beyond hope.

Dr. William L. Ballenger said Dr. Robertson had very well outlined the hopelessness of these cases, but he wished to repeat what Dr. Crile told him. A patient called on him, and on examination he found involvement of the tongue, pharynx, larynx, glands—a very extensive involvement—and he, of course, believed the case hopeless. The patient would not hear of this, however, and insisted on operation. The operation was performed, consisting of removal of the tongue, the lateral and other walls of the pharynx, tonsils, glands and larynx, and Dr. Crile said the patient has been well several years. So, then, there are occasionally desperate cases that recover.

Dr. Robertson said that he did not mean that he has no hope at all in these cases, but it looks that way to him.

REPORT OF A BACILLUS RARELY FOUND IN THE TONSIL.

Dr. J. Gordon Wilson wished to record the finding in the palatine tonsil of the bacillus aerogenes capsu-

latus (Welch). The tonsil was removed for frequent attacks of tonsillitis in a patient who had had frequent severe attacks of gastro-intestinal disturbance and slight chronic articular rheumatism. The full report, he will present at a future meeting of the society. The rarity of its reported occurrence in the tonsil (this is only the second case), and its frequency in the gastro-intestinal canal, together with the marked symptoms which it is reported to occasion, justify its presence being noted.

PAPER: THE OPERATION OF CHOICE IN MAXILLARY SINUS DISEASES.

Dr. George Paull Marquis wished to point out a few of the advantages and at the same time mention the only disadvantages he knows of connected with the operation devised by Denker. In the author's opinion the question of greatest importance to be decided in the choice of a particular operation is: Which operation will give the patient the greatest probability of a cure? Which can only be answered after weighing the following points: (1) Which method will permit him to do the most thorough work? (2) By which method can he gain access to each and every part, depression and bay in the maxillary sinus? (3) By which method can he not only gain access to, but also inspect each of these parts? (4) Having cleaned out the sinus, which method is followed by the most rapid healing? (5) Following which method are the parts more nearly in their normal relation and the antrum least liable to reinfection in the future? (6) Will the operation in question be followed by unpleasant or even serious symptoms, such as localized areas of anesthesia or severing the nerves, occlusion of the nasolachrymal canal, facial deformity, fistula into the mouth, etc.?

Dr. Marquis described the operations of Krause, Hajek, Menzel and others, Luc-Caldwell, Kuster Desault, Boenningshaus, Friedrich, Kretschmann, Canfield and Denker, narrowing his discussion down to a comparison of the relative advantages of the Luc-Caldwell and Denker operations. As to the ease with which these methods can be employed it is naturally one of opinion, but in his experience and after watching a number of others perform both operations, the Luc-Caldwell is more difficult than the Denker. Concerning the second point of comparison, that of relative degree of normality of the structures and probability of reinfection, the Denker far surpasses the Luc-Caldwell. In the latter the chief point of advantage, as put forth by its supporters, is the large opening into the sinus from the nose and the easy access after resection of a portion of the inferior turbinal, but this very act weighs against the operation, for the structures are certainly less normal with the part of the turbinal removed, and there is greater liability to reinfection with the protecting turbinal gone. Maintaining the turbinates intact is one of the strong points in favor of the Denker method.

With regard to rapidity of healing the precedence is

given to the Denker operation. In a series of Denker operations the longest time he has seen until complete healing had taken place was thirty-three days and the usual time has been about three weeks. This can be explained by the fact that the cavity is open to more thorough inspection in the Denker operation and also the covering of the floor with the membranous wall of the nose, as practiced by Denker, reduced the time necessary for healing by a decided margin.

As to sequelæ, there may be some slight advantage in the Luc-Caldwell, if any conversation with operators is borne out. He has found in the Denker that the nerve supply to the front teeth as far as the bicuspid is interfered with.

Skilern has recently come forward with a very effective and simple operation, which has in its favor (1) It is easily performed and can be done under local as well as general anesthesia. (2) It gives a good field of observation—better than the other intranasal operations, with the exception of the Canfield. For cases of empyema without polyp formation or bone necrosis it should afford as good a result as the Denker or any other operation and is certainly more easily performed.

To sum up: The Denker under each one of the standards of comparison is superior to all the others, except the Canfield. The only disadvantage that can be brought against it is the loss of sensation in the three front teeth. How permanent this is he is not able to state, as all but four of his cases have been lost sight of. These four have been operated on within the last year and still have the numbness referred to.

DISCUSSION.

Dr. William L. Ballenger has had considerable experience with the Denker operation, as performed by Hajek at least, and also with the Canfield operation, with some modifications—probably an equal experience with each, and he must confess that the Denker operation, performed through the mouth, is superior to the Canfield procedure, in his experience. The Denker operation, as performed by Hajek, which is his model, is a work of perfection. He has never seen Denker do any work. He saw Hajek operate on three or four cases three years ago, and with Hajek's lip retractors the field is absolutely open to inspection during the operation. It is just as though the antrum were taken outside of the face and inspected with perfect liberty. That, of course, is the great advantage of this operation. In the Canfield operation, while you can see the interior of the antrum remarkably well, it by no means compares with the view obtained by the Denker operation through the mouth.

With regard to the time of healing: He has never performed the typical Denker operation, using the nasal mucous membrane as a flap. He does not believe there is any advantage in it, because his cases certainly get well as quickly as those mentioned by Dr. Marquis, which were operated on with the flap. Neither does he pack the antrum after operation—not even immediately following the operation. He does occasionally put in a very small wick for drainage, but not always, in either the Canfield or Denker operation. He does not believe there is any advantage in packing, but a great disadvantage. There is always the possibility of retention of secretions and subsequent reinfection.

He has not recently resorted to the mucous membrane flap in any of his sinus operations, and does not feel that his results justify him in attempting it now.

The point he wished to emphasize was that if the Hajek

lip retractors are used, a remarkable view of the field will be obtained. In his opinion, the Denker operation without the flap, and, if desired, with it, is the operation of choice in chronic empyema of the antrum of Ilighmore. He does not believe, however, that it is best to remove the contents of the sinus in all cases—perhaps in none. He believes with Dr. Myles, of New York, that the antrum is too large a cavity to ever completely fill with granulation tissue. If you do a complete denudation of the sinus, it only partially fills, and there will be a suppurating surface left. He did not know if Dr. Marquis implied that there should be a complete denudation. Of course, the obviously diseased tissue should be removed. But one should always be careful to leave some periosteum in these cases, because we cannot hope to get complete filling in of so large a cavity by granulations, and in that case there is liable to be more or less discharge from that cavity for all time to come.

Dr. Joseph C. Beck, in view of what Dr. Ballenger said, namely, that he believes with Dr. Myles that the antrum cannot be obliterated, said that he thinks it can and does become obliterated, and that it is necessary in some cases to resort to that method of treatment when the intranasal method or the Denker operation is performed, and does not cure the case. It is not his fortune to cure these cases in three weeks. In the majority of them he finds that they suppurate for some time, and many of them do not get well unless he attempts to obliterate the cavity. The statements made about chronic suppuration were too broad, without mentioning something of the pathological conditions present in the antrum. If it is a simple infection, no necrosis having taken place, then any simpler method of treatment will suffice. But where necrosis and true granulations exist, such cases will continue to suppurate until that bone is healed. It is no different there than in the mastoid or any other cavity lined by mucous membrane and exposed to the external world. Therefore he believes there are certain cases that the Denker operation, nor any other less radical operation, will not cure. He has had two cases in which he exposed the cavity obliterant on account of a neuritis secondary to the operation of obliteration, in which he found the cavity had entirely closed, the opening into the inferior meatus being only a small dimple. In the second case he did not operate, but inspected through the opening with the pharyngoscope, and it had filled up with granulations. In such cases it is necessary to remove a greater portion of the bone, in order to make the cavity, so to speak, collapse. You must go underneath the malar bone and remove the bony structure. In these operations he employs the electric bur, drilling all through the cavity, and shaving off the bony surface almost to the outside periosteum of the antrum, orbital as well as any other place. He realized the inconvenience from a secondary neuritis or neuroma of the inferior orbital nerve, but he has not seen any great difficulty with that, and it is easy enough to control, if there is any secondary pain, by injections of alcohol into the inferior orbital foramen.

Dr. Charles M. Robertson said that the mucous membrane and the perichondrial layer on the nasal side make a very thick flap, and it is a flap thick enough so that you can mould it to suit yourself. That is rather a difficult thing to do, and requires a good deal of care, but if one is careful in putting the packing in (the speaker always dresses his cases) to get the flaps in place, they will stick.

Dr. Beck had raised a very good point regarding the pathological condition that is present. In cases of infections of the mucous membrane, Dr. Robertson does not pretend to take out the mucous membrane of the antrum any more than any other place in the nose. If there are polypoid degenerations, the polypoid degeneration is removed. He does not know just whose operation he performs, but he thinks it is the Caldwell-Luc rather than the Denker, although he does not follow either one, but a combination of both. However, he is particular about cutting away the antrum wall, destroying the anterior angle. The neuralgia, or lack of function of the superior dental nerve of which Dr. Marquis spoke, occurs because he gets too close to the floor of the antrum and injures the superior dental in the bony canal. The superior

dental nerve is very often slow in recovery, and very slight massage with a curet will sometimes injure it enough to disturb the function for some time. The lip neuralgia and lack of sensation are probably due to the stretching of the skin of the cheek during the operation, and will disappear after two or three months.

As regards destroying the antrum by the method Dr. Beck spoke of, one must be careful in any cavity in allowing granulations to go on. We see that very often in the mastoid, where granulations are allowed to become rampant. The granulations adhere to each other and form suppurative cavities. If anybody were to operate on any cavity in his body he would require him to superintend the granulation, allowing it to progress gradually rather than to go as it pleased. As a matter of fact, Dr. Beck said that the cavity was absolutely destroyed, and that there was only a dimple of an opening in the nasal wall. This shows that the antrum, if the mucous membrane is denuded, will close, and that is one reason why Dr. Robertson is particular about folding flaps into the antrum, so that he knows the opening will stay there forever. The Denker operation, in throwing the flap down on the floor of the nose, will allow an opening, but not as you leave it at the end of the operation. By the speaker's method the opening stays where he leaves it, because he has measured these openings five and six years after operation, and they are just where they were when the operation was completed. The matter of taking away bone would be the only way in which you could destroy a cavity like this; get the bone so that granulations come from bone tissue. When Dr. Brophy read a paper before this Society last spring it was stated that cavities in which the mucous membrane was removed healed over by epithelial tissue, and that epithelial tissue was prone to be very easily infected, because of lack of vitality. That is one reason why Dr. Robertson likes to leave mucous membrane in the antrum, which will close over the periosteum and meet the mucous membrane flaps that generate from the mouth of the opening, as he expects to leave them. It seems to him that the Denker operation, or the Caldwell-Luc-Denker, if you call it so, is the only operation, and it seems to him that in all of these cases, unless you just scratch out the antrum a little and leave all of the mucous membrane in place, they must necessarily be packed. If you just curet a little of the mucous membrane there is not any particular idea in packing the nose, although, to him, it is absolutely essential that he put in dressing. He has never seen any after effects from infection by reason of retained secretions. That is a reflection on the man who puts the packing in the nose. He drains rather than packs, and there is a great difference in the way dressings are placed in the cavity. He would expect his cases to go on and suppurate if he put a drainage wick in a cavity. He does not do it in the mastoid, and does not expect to put it in the antrum, although Dr. Ballenger has probably just as good results as he, and he practices that. He leaves the dressings in for four or five days, and that is the last he treats them, and they get well. The patient washes his own nose out. If these patients are not well in two or three weeks, he thinks there is something wrong in the technic. He would not say that these were the cases referred to by Dr. Beck—disease of the bone—but they are the cases Dr. Marquis spoke of, of infection of the mucous membrane; in other words, chronic cases.

Dr. Norval H. Pierce confessed to a sense of uncertainty as to the outcome of any given operation for empyema of the maxillary sinus, because he has had most extraordinary results from simple opening through the inferior meatus in cases that he believed were very severe, and he has had failures from the Caldwell-Luc or the Denker operations. Being somewhat at sea in this matter, he thought he would become experimental in a case on which he operated toward the end of last winter. It was a severe case with profuse purulent discharge from the nose, in a girl in the early twenties. He took away the anterior wall and found the antrum entirely filled with polypoid tissue, so that he removed the entire mucosa of the antrum, and found sharp ridges of bone running about this cavity, so that it was divided into various little pockets. With a bur he took away all these ridges, so that at

length he had a denuded bony cavity, with a smooth surface. He did not open into the nose. He did not even enlarge the normal opening into the nose. He found with a probe that it was quite large. He did not pack the cavity. He sewed up the buccal incision over the bony wound, and the patient had scarcely any discharge from that antrum from the time of operation until he saw her last, perhaps six months afterwards. Dr. Andrews will probably say that that was a blood clot healing. There is no doubt but what that cavity did fill with a blood clot.

Dr. Corwin asked Dr. Pierce if transillumination was done and what it showed?

Dr. Pierce said there was always a shadow, both before and after operation, on that side.

He has had failures with every kind of operation. The majority of these cases get well; there is no doubt about that. But the very cases you think are going to get well are the cases that do not get well. He has at the present time under his care a physician of prominence, and in this case he was very careful to do a thorough Caldwell-Luc operation, except that the nasal opening was in the middle meatus. He took away the diseased portion of the membrane and left little islands, which he thought on inspection were healthy mucosa. He did it under a local anesthetic. Everything went beautifully, but now, after a year, muco-pus is still coming from that man's antrum.

Dr. Beck brought out a very good point. The outcome depends largely on the pathological condition of the maxillary antrum. If there is granulation tissue, there is also necrosis—superficial caries of the bone—and this should be carefully removed with either a bur or a curet. Personally he believes that it is essential to be able to inspect the entire antral surface in these cases that resist the ordinary non-radical procedures. This is the essential in all radical operations. He does not believe the Caldwell-Luc, or the Denker, or any other operation, will invariably cure an empyema of the maxillary sinus. A statement such as that is rather too sweeping.

Dr. J. Holinger, in the early part of the past summer, operated on three antra according to Professor Denker's method and since July five more. Before the beginning of last summer a number of cases had been operated upon and had been under control ever since. He had had the good fortune to assist Professor Denker in an operation in Boston and does not deviate at all from the operation as he saw it at that time.

Regarding the pathology of the suppuration of the antrum: He considers it the advantage of the Denker operation that the whole cavity can be controlled; the pathology—whatever it is—can be seen and felt. The great variety of findings in the different cases has already been mentioned. Ridges and even bony septa which close out parts of the antrum are seen and removed. Necrosis of bone can be seen. Polypoid and even malignant degeneration of the lining may be recognized and properly dealt with.

As to the removal of the membrane by means of the curet, he has more than ever the impression that it is better to have even a polypoid, degenerated membrane than no membrane at all. He does not, and Denker does not, remove any of the lining of the antrum except from the floor, where the flap of the nose will cover the defect. The results, as he has seen them, have been universally good. Amongst the patients he operated on in August there was one who had had the other side operated on by a member of this society by another method. Six weeks after the Denker operation he washed both cavities. The cavity that was operated on by the other method still contained pus. The cavity operated on by the Denker operation was absolutely clean and did not contain any pus at all.

However, he had to confess to one failure, but that was satisfactory. He explained. It was a very old syphilitic case, of the antrum, as was shown afterwards—a suppuration moidal and frontal sinus; that is, a pansinusitis. The other sinuses did not contain any clear symptoms and became evident only after the operation. An x-ray picture showed the frontal

sinuses absolutely normal and later on the speaker could wash out a lot of pus from them. He wished to remind the members that syphilitic suppurations of these parts do not yield to iodide of potash and mercury, not even to salvarsan. Dr. Louis Schmidt cautioned him not to use a strong anti-syphilitic treatment in these cases, at which Dr. Holinger was surprised, but Dr. Schmidt insisted that such treatment often makes the suppuration worse and such was the case. In this case all the cavities have been washed out every day—the antra, frontal and ethmoidal sinuses—which is a very tedious work, and the patient has improved remarkably in a comparatively short time. That is, he has improved more in two weeks than during the two months previous.

Denker always emphasizes the point of smoothing away from the floor the last remnant of the wall between the antrum and the nose; no ridge must be left, so that there is a perfectly smooth floor from the nose into the antrum. If there are difficulties in the after-treatment you will sometimes find that this point has been overlooked.

Dr. George E. Shambaugh said that when this subject of the operations for the relief of chronic maxillary sinus empyema was discussed last year he had called attention to the favorable results which he had seen in a number of chronic cases where the opening had been made through the middle meatus. In listening to Dr. Marquis' paper he had not noticed that any mention was made of this method of curing chronic empyema of the maxillary sinus. The speaker believes that an operation through the middle meatus could be more properly considered the operation of choice for the relief of empyema of the maxillary sinus than the radical Denker procedure, which should be reserved only for cases where the simpler operation fails to give satisfactory results. He has already had quite a series of these cases and has been not a little surprised at the favorable results obtained. He does not believe that it is possible to tell positively before going into the maxillary sinus just what conditions will be found when the sinus is opened up.

The operation is performed by taking off the anterior part of the middle turbinate body and then breaking through the nasal fontanelle into the maxillary sinus, and with suitable forceps, making a large opening, one-half to three-fourths inch in diameter. The whole operation can be performed in a very few seconds under cocaine. It seems that allowing the air to enter freely into the maxillary sinus is sufficient in itself to bring about a cure in many cases. In some cases where the discharge is persistent it is possible for the patient to irrigate the sinus very successfully at home by the use of an ordinary Eustachian catheter. The patient should be taught by tipping the head forward how to empty the sinus of all fluid after irrigation. The writer does not believe that the presence of polypoid degeneration of the mucous membrane of the antrum renders the case unsuitable for this method of treatment. There can be no doubt that extensive changes in the mucous membrane of the antrum return to a normal condition after allowing free ventilation through an opening in the middle meatus.

There is no objection to this method of operating that some of these cases do not get well with this simpler procedure. Where a case still continues to have enough annoyance after this operation to warrant a more radical procedure, then one may go ahead with the Denker operation. Since the speaker has had the opportunity of seeing Professor Denker do his operation he has been convinced that this is the best method for the relief of otherwise intractable empyema of the maxillary sinus.

Dr. A. H. Andrews was pleased to hear Dr. Ballenger say that he did not make the flap in breaking down the wall between the nose and sinus and also to hear him say that he did not pack these cavities. If he had said that he did not wash them out afterwards he would have been still more pleased.

Dr. Ballenger said he had intended to say that, because he does not wash them out afterwards.

Dr. Andrews was also pleased with Dr. Shambaugh's position. Personally he does not know of any way to tell before operating just what the conditions are in the antrum of

Highmore. He does not know of any way to tell whether it is a chronic or subacute case. The history usually is not clear. The patient himself does not know when the trouble began, how long it has existed or anything about it. They frequently do not know they have any trouble until examination for some obscure nasal trouble discloses pus in the antrum. He has followed the plan mentioned by Dr. Shambaugh almost invariably, unless the patient has come from a distance and must have something done that offers the best chance of ultimate recovery and must have it done at once. He always goes in through the middle meatus, makes a considerable opening, cleanses the cavity with a current of compressed air and sees how the condition gets along. Anyone who has not used that method will be surprised at the number of cases that will require no further operative treatment. Once in a while one will continue to discharge and then, as said by Dr. Shambaugh, a more radical operation can be performed. The speaker is of the opinion that he treats his share of these cases of disease of the antrum of Highmore and if his observation is worth anything at all it is this, that they will get along far better if water is kept out of these cavities than if the douche is used. We have very sufficient and adequate means of cleansing the cavity by compressed air and every drop of pus can be blown out. It is an easy procedure and his patients have gotten along very much better since he has done that than when he used the douche method.

Dr. George E. Shambaugh asked Dr. Andrews what he did about the home treatment when he used only compressed air to clean out these cavities.

Dr. Andrews replied that he did not have them use any home treatment. He has them come to the office twice or three times a week and that is all the treatment they get. With the method outlined it makes no difference whether they are acute or subacute cases—the treatment is the same.

Dr. Shambaugh said that he considers it very important that the cavity should be thoroughly emptied of water after irrigation, as the water acts as an irritant in keeping up the empyema if allowed to remain in the sinus. The patient should be taught how to tip the head forward and to the opposite side in order to assure the entire emptying of the sinus after irrigation.

Dr. A. M. Corwin thought something should be said in commendation of this excellent paper. Dr. Marquis had in a comprehensive and analytical way gone over these various operations and that kind of a paper is of value and teaches all of us to think. He is inclined to agree very much with what Dr. Andrews had said. He used to irrigate all these cases, but latterly he has discarded that practice very largely. Occasionally he practices it in the office, but does not let the patient do it himself, except in isolated cases. He has observed that it is not mere irrigation; it is not mere drainage that cures these cases, but it is ventilation, as shown by the fact that a good opening in the middle meatus will cure many cases, and the forcing in of the ordinary outside air is an efficient aid.

The speaker agreed with Dr. Shambaugh in his remarks regarding the choice of operation. The more conservative method should be tried first, to be followed later by a more radical open operation if necessary.

It does not seem to him that it is possible, through a large opening in the middle or inferior meatus, with a cannula, to blow every drop of pus out of such a cavity, as suggested by Dr. Andrews, but he does believe that the ventilation does act in a mysterious beneficial way to help nature repair the damage done by infection of the closed cavity.

There is no one practicing this specialty who has not had unfavorable results, even by the most radical methods, and, on the other hand, even by the simplest method, either the Krause or the method through the middle meatus, the most kindly results have been obtained. But where the simpler intranasal operations are not sufficient, the Denker or modified Denker or Caldwell-Luc operation is needed to reveal the pathology.

Dr. Otto J. Stein said that his experience has led him to feel now that he cares less and less to perform all of the

radical operations mentioned. He feels that some of the minor operative measures of making large openings through the nose either below or above the inferior turbinate, have saved many of his patients from a more radical procedure. He did not care to enter into the discussion of the choice of these various operations, however. That rests a good deal, as had been stated, upon the pathology and individuality of the operator and probably the thoroughness with which the operation is performed.

Dr. Marquis (closing the discussion) thought the members were pretty much agreed as to the general points he tried to bring out in his paper. He thought, however, he had been a little bit misunderstood by Dr. Shambaugh and Dr. Andrews when they spoke of trying the simpler operations first. Dr. Stein also, he feared, misunderstood him on this point. He did not intend to convey the opinion that every case of suppurative that came into his office, in his opinion, should have the Denker operation performed. Far from it. It is only in cases of last resort. He tries a simpler method first. A great majority of the cases will get well with simple washings, although Dr. Andrews does not believe in them. Dr. Marquis has seen a great many get well in that way. He does not care how the pus is removed, whether by washing or compressed air, a great majority will get well if the pus is gotten out and drainage established. It is the rarest exception that we have to perform a radical operation, but the object of the paper was to bring out in those cases, where the simpler method did not suffice, the radical operation of preference. These patients, when radical operation is required, should be given the benefit of that one which will give them the greatest probability of a cure and allows the operator to control the field of operation under observation.

Dr. Pierce has thought that the Luc-Caldwell gives a better field of operation because it takes away the anterior wall, while the Denker only takes away the nasal wall and the opening around the pyriform aperture. The very object of the Denker operation is that you can carry that opening just as far as you want, clear back to the molar teeth if necessary. You can take the entire anterior wall off, if you want, and get an opening which brings it out in front of you. We all know that we have had trouble in these cases that do not get well because of some little focus in the anterior angle, and that is bound to stay in a Luc-Caldwell operation. But in the Denker operation there is no question but that you have every part of it under observation.

As to the question of removal of the entire membrane the speaker did not want to be understood as doing that. There, again, is the very object of the Denker operation, because it allows the operator to see what membrane to remove and what to leave. He is not working in the dark. The object of this operation is that you can work under the control of the eye and see which parts you want to remove and which should be allowed to remain. That, he thinks, is one of the strong points of the Denker operation.

As to the flap: As he said in his paper, he was opposed to it; he has been converted, and hopes others will be. He has better results in healing with his present method.

Denker only insists on the removal of the membrane of the floor and the healing of the flap will take place. Only the diseased membrane is removed.

Regarding packing he read an article in a journal a short time ago—a discussion from Uffenorde, Hajek and Onodi—on the subject of nasal packing following operation, and they all said they did not believe in packing and did not practice it. He has been with all of those men and never saw them operate on a case without packing. They all do it. He did not mean that the gentlemen present used packing, but there is a great deal of talk about not packing in the nose, and then a great many men do it afterwards. Personally, he believes with Dr. Robertson that if one is going to use a flap, a carefully applied dressing to retain the flap in position and at the same time promote drainage (don't call it a pack) will promote healing. So far as the rest of the points of the operation are concerned he thinks that they are all agreed.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

*Meeting Nov. 16, 1914—Continued.*INTRANASAL OPERATION FOR
DACRYOCYSTITIS.

Dr. Frank E. Brawley reported the case of a woman, fifty years of age, who had dacryocystitis of nearly a year's standing. Local treatment for several weeks was without avail. The dacryocystitis was controlled by syringing, but it was impossible to pass a probe through the nasal duct. Two weeks ago last Thursday he did intranasal opening of the tear sac, dissecting up the muco-periosteum for about a centimeter square and the anterior attachment of the middle turbinate. Instead of using the chisel method of West, he made use of a cutting bur such as was used in mastoid operations. This bur was made of the proper length to reach the area. He cut through with this long bur very quickly, enlarged the bone opening up and down and sideways, and there was no cutting into the tear sac at all. Today there were slight evidences of reaction, some thickening at the margin of the bony wound, but tear drainage was perfect.

DISCUSSION.

Dr. Joseph C. Beck had operated on four cases of dacryocystitis by a method a little different from the one described by Dr. Brawley. The last case was a boy, six years of age, who had had chronic dacryocystitis since he was a year old. There was no benefit from the usual treatment. Patient had ulcerative rhinitis in infancy. The naris was very small. It was now two weeks since the operation was done, and it was too early to judge whether the opening was going to remain patent.

Dr. J. Sheldon Clark, Freeport, said in cases where the bone was heavy or thick the bur would be of some advantage, but where one had thinner bone to deal with, the chisel would serve the purpose nicely, and in such cases he had had no trouble in using that instrument.

Dr. Oliver O. Tydings said it was more satisfactory to the operator and more comfort to the patient to use the bur whenever it was possible to do so.

Dr. Michael Goldenburg saw a number of cases last summer that had been operated on by different men, and some of them had been under treatment for nine months after the operation. He examined the noses of some of these patients and found pus flowing freely over the middle turbinate and going on through the middle meatus. He failed to see the advantage of the intranasal operation over the external operation. The advocates of the intranasal operation claimed that the only advantage was it did not leave an external scar.

Dr. Oliver O. Tydings stated that some years ago he operated on a case of forty years' standing. There was no reason why there should be a constant flow of pus if the opening was made at the bottom of the canal and drained. There would be free drainage and one would get rid of pus.

Dr. Willis O. Nance asked Dr. Goldenburg as to the result in the cases he had seen relative to the relief of the epiphora.

Dr. Goldenburg said he was in Killian's clinic and saw two patients, one of whom was having trouble all the time from epiphora.

Dr. Harry S. Gradle saw half a dozen cases that were operated on by West in Hirschberg's clinic, and in these the epiphora was relieved and the tear passage restored.

Dr. Brawley stated that some of the cases mentioned by Dr. Goldenburg might be explained on the ground of ethmoidal infection, and they had not been properly handled. There might be cases in which there was considerable necrosis in the lachrymal fossa, but with the bur operation, if there was ne-

crosis and soft bone, it would be easy to remove it, so that we would not expect to have a chronic discharge.

CAVERNOUS SINUS THROMBOSIS AND
THE FUTURE.

Dr. Henry Glover Langworthy, Dubuque, Iowa, stated that the study of cavernous sinus thrombosis had been limited in the past. First, because the cases were rare and the average physician in a lifetime would scarcely see more than two or three sufferers with the disease. Second, few men even today really considered the sinus available for surgical interference, especially when the patient might seem already in a septic moribund condition and the cavernous sinus itself only one of a number involved.

After speaking of the symptoms, the author stated that in making the diagnosis of a given case even without previous experience, one might formulate this rule: When there was increasing exophthalmos and lid edema on the same side as a somewhat distant infecting focus, any edema of the face and neck, septic temperature, and the slightest evidence of beginning lid edema or exophthalmos of the opposite eye, we were safe in saying that the later positive symptoms of cavernous sinus thrombosis were present beyond a doubt. A fairly early diagnosis in cases where the infection originated posteriorly about the ear or back of the neck was comparatively easy and should present no difficulty.

The prognosis was bad, and the mortality ninety-nine per cent. For all working purposes the mortality under present conditions should be considered one hundred per cent.

As possible operative routes to attack the sinus or methods of treating the same, the following were mentioned as still to be perfected: Mosher's proposed anterior route through the orbit, Hartley-Krause Gasserian ganglion route through the side of the skull, and the Luc-Langworthy route upward through one side of the nose and sphenoidal cavity, and lastly in certain otitic cases energetic treatment of the original focus alone from behind, namely, by opening the lateral sinus and jugular bulb thoroughly and resecting the internal jugular vein.

If we were to progress in the treatment of so baffling a disease, the author said we must rigidly adhere to three cardinal points connected with it: 1. Standing flat-footed upon a reasonably positive diagnosis as early in the disease as possible. 2. Viewing the sinus as we would any other large vessel which had become thrombotic. 3. Following routinely that operative path which seemed to the surgeon in charge as best fitted for drainage.

At the present time, and looking fearlessly into the future, it would seem wise until more evidence to the contrary was produced to look upon these cases with increasing hopefulness and as offering surgical opportunities which should not be ignored.

Dr. Albert E. Halstead had seen a number of cases of thrombosis of the cavernous sinus, most of them the result of trauma. Two cases were the result of gunshot wounds. One was a gunshot wound of the ear in which the bullet passed through the middle ear, struck the greater wing of the sphenoid after penetrating the ganglion and lodged in the sinus cavity. Another was a gunshot wound of the temporal region in which the sinus was injured and patient developed sinus thrombosis. At first, patient lost one eye, then the other, and finally recovered after both eyes had been removed. The patient with a gunshot wound of the ear lived for about two weeks. He developed what the speaker supposed to be, in addition to sinus thrombosis, brain abscess. He operated because of the brain abscess, and not because of the sinus thrombosis. He exposed the sinus easily by the usual route used in reaching the Gasserian ganglion and was able to scrape out all the sinus and remove the bullet, which was lodged in the sphenoid bone, but the patient died of meningitis. He had had meningitis before operation, but the speaker was not aware of the extent of it. He had had two cases, besides these two, of gunshot wounds, that got well without operation, which demonstrated to him conclusively that patients with thrombosis of the cavernous sinus might recover spontaneously.

Dr. Joseph C. Beck spoke of a method which he had de-

veloped of reaching the hypophysis by way of the antrum following the Henson operation, and had operated successfully on two cases of hypophyseal tumor of the glandular region. One patient recovered his vision; the other had since died from progressive sarcoma which began in the hypophysis and the greater part of the tumor was found in the cerebral portion.

Dr. John R. Fletcher stated that as soon as he saw Dr. Kanavel operate on the living for tumor of the hypophysis, he went to the dead house and undertook the same operation upon the dead, and found the route through the nose on the dead subject not very difficult. There he had no difficulty with hemorrhage which was likely to occur in the living subject. Since then he had done the operation several times upon the cadaver and had also followed the route referred to by Dr. Beck in reaching the hypophysis. In the first operation he did, following that of Dr. Kanavel's on the living, he not only went through the nose but through the Gasserian ganglion region and was able to demonstrate that case. The specimen was shown several years ago before the Chicago Medical Society.

Dr. Langworthy, in closing, said it would seem that some cases of thrombosis of the cavernous sinus were amenable to surgical treatment, while others were not. The operator must decide that question for himself.

THE OCULAR MANIFESTATIONS OF DISEASES OF THE NASAL ACCESSORY SINUSES.

Dr. Richard J. Tivnen read a paper on this subject, which was illustrated by stereopticon views showing the anatomic relations of the structures discussed.

In a consideration of the ocular manifestations of nasal accessory sinuses, of prime importance was the anatomic relation of these cavities to the ocular structures. This relation was a very intimate one and suggested at once a great likelihood of extension of pathologic processes from such closely allied structures. Apart from this close anatomic relation, ocular manifestations, occurring in common with sinus disease, had been explained by many varied theories. These comprised in the main as their basic principle disturbed drainage from the sinus with its attendant interference with physiologic function, and the varied circulatory manifestations which such processes entailed. The disturbance to ocular structures consequent upon sinus disease practically might include every tissue and structure of the eye and orbit. In the lids, causing redness and edema; in the muscles, weakness, paresis, disturbance of accommodation; in the globe, ex or en-ophthalmos of various types; in the orbit, abscess, cellulitis; in the uveal tract, iritis, irido-cyclitis, uveitis, etc.; in the optic nerve, neuro-retinitis; in the choroid and retina, chorio-retinitis, etc.; in the cornea, keratitis and abscess.

The symptomatology was influenced by the location, extent and severity of the particular process and ranged from slight asthenopic symptoms, such as blurring on use of the eyes, to absolute blindness.

The essayist at this point exhibited stereopticon slides showing the intimate anatomic relation of the sinuses to the orbit and ocular structures.

Many eye cases of this class were labeled hypo-

chondriacs and their distressing complaints were considered imaginary or greatly exaggerated. A more careful study of this type of case would disclose that many of them were afflicted with sinus disease, with secondary ocular manifestations. Apart from the specific pathology of the individual structure involved, there was quite commonly present in such cases a toxemia, which might manifest itself in such vague symptoms as depression, lassitude, inability to concentrate, etc. The conspicuous role played by certain structures, notably the tonsil and teeth, in the production of general systemic infections was nowadays well recognized. Guided by these experiences and keeping constantly in mind the exceeding vulnerability of these neighboring structures, the relative frequency of sinus involvement, and the fact that often these involvements did not frankly disclose themselves, the intimate anatomic relation of the structures, would frequently serve to direct the attention of the ophthalmologist to these parts as possible focal points in many obscure ocular lesions.

In summarizing, the author felt the following conclusions were warranted: 1. Interrogating the nasal accessory sinuses in all disturbances of the eye and orbit of an obscure nature. 2. Obtaining a clear history of the ocular manifestations, regarding such symptoms as frequent head colds, headaches, etc., associated with the outbreaks of the ocular trouble, as suggestive of sinus complications. 3. Cooperation in all obscure eye cases with the rhinologist, the otologist and oral surgeon. The value of such team work could not be over-estimated. 4. A careful ocular examination, particularly the examination of the fields of vision for form and color.

Dr. Nelson M. Black, Milwaukee, Wis., gave a demonstration of the transmission qualities of the glass used for railroad signaling, and that worn for protection by employees in railway service and other industries where protection from intense light was necessary. He discussed radiation and the spectrum of radiant energy. The properties of colors or color constants were applied to railway signals, illustrated by a chart showing transmission at the various Fraunhofer lines. He spoke of the future of railway signaling and the necessity of absolute elimination of all color blind in railway service. Attention was given to the factors which interfere with the visibility of the signals and the protective measures used. He pointed out the necessity of a protective glass which would not interfere with the intensity and hue of a color signal and thus reduce the range.

AN UNUSUAL FORM OF PERSISTENT CAPSULO-PUPILLARY MEMBRANE.

Dr. L. E. Barnes reported this case. The patient, H. D., was thirteen years of age. Erysipelas at three weeks of age following a scalding burn; mushroom poisoning at five years of age. Patient's history and family history negative. Both eyes normal externally, anterior chambers normal, and pupils dilate well under atropin.

Right eye. Underneath the anterior capsule in the pupillary area in a horizontal line were three punctate opacities of the lens. In the upper nasal

quadrant was a subcapsular opacity, irregular in outline, two millimeters in diameter and one-half millimeter deep. From the upper inner edge ran a broad flat band of opacity. First it went directly back, then downward and back, terminating in a point just in front of the posterior capsule. This opacity was irregular in outline and seemed to have a central zone of opaque tissue surrounded by flocculent opacities. The rest of the lens was normal in size and shape. The edge of the lens did not appear to be nicked like a coloboma. The opacity did not interfere with central vision. The fundus was normal. The eye was hyperopic +150 D. The left eye was similar to the right, only there was an additional opacity that appeared to encircle the nucleus of the lens. The irregular opaque fibres were more fibrillar than in the right eye, with less surrounding corneal opacities. The ophthalmic literature at the author's command for the last five years contained no reports of a similar embryological case.

PAUL GUILFORD,
Secretary.

Regular Meeting, Dec. 14, 1914.

A regular meeting was held December 14, 1914, with the president, Dr. Wesley Hamilton Peck, in the chair.

Dr. John R. Hoffman presented a case which showed the invariable short period of healing after an intracapsular cataract extraction. He operated on the patient, Dr. B., on the fourth instant, this being the eleventh day. A preliminary iridectomy had been done some months previously, but because of unavoidable delays the extraction was not done as early as contemplated.

In the operation he followed the technic as described by Dr. Vail of Cincinnati, with the modifications and instruments devised and used by Dr. William A. Fisher, with the departure from the latter in so far that the spring speculum was used while making the incision. The author had made it a rule to use the retractor in this step of the operation. The reason for the departure at this time was the fact that the patient did not stand the retractor well. It was tried several times after recocainizing the eyes before proceeding with the operation, but the patient exhibited a great deal of uneasiness every time. On trying the speculum, however, the irritation was not so severe and patient was quiet. After making the incision after the method of Smith, the speculum was replaced by the Fisher lid-hook and the author proceeded to deliver the lens according to the procedure described by the tumbler class, as the lens appeared to be of the intumescent variety which readily tumbled. Placing the point of the extracting hook over the border of the lens and making pressure directly downward towards the feet, the capsule readily gave way below, and the lower edge of the lens presented in the wound first, making the delivery practically free from danger of loss of vit-

reous, as the upper part of the capsule was ruptured in this class after the lens was out of the wound, and the eye being turned up, there was no pressure exerted on that medium. After making the usual toilet of the wound, which consisted in replacing the pillars of the iris coloboma with the iris reposer, both eyes were dressed with yellow oxid of mercury ointment over the palpebral fissures and gauze pads and the patient was put to bed.

The patient exhibited no discomfort during his period of confinement to bed for the usual nine days.

The dressing was not disturbed until the ninth day, when on removing it the wound was found healed, and the eye presented none of the irritable conditions present in a large number of cases after the extracapsular operation. Examination of the media showed everything clear, and vision without a lens was at 6 feet, with a plus 10.00 it was 20/30. The case was typical of the healing in successful intracapsular operations.

The author was convinced from the moderate experience he had had with the operation that any one who had had experience with the older methods of extraction, and desired to do it, would be successful if he followed the technic of Vail and Fisher, with an assistant who would study carefully the method of holding the lid hook.

DISCUSSION.

Dr. William A. Fisher stated that the corneal wound had healed and the patient had recovered from the operation without the slightest irritation or inflammation. The eyes were bandaged for nine days after the operation, and tonight, eleven days after the operation, the patient seemed to be in a condition to be discharged. The fundus could be seen with the ophthalmoscope, and there was no capsule to interfere with his vision or cause him to return for a secondary operation. Patient's vision was 20/40 with correction and it was fair to presume that he would have 20/20 within the next two weeks.

Many operators would be glad to adopt the intracapsular operation as a method of choice provided they could safely perform it. He was pleased to know that Doctors Hoffman, Tydings, Gradle and Suker were doing the intracapsular operation, and he believed many more would be doing it in a short time, provided the technic was mastered while doing the old operation.

To remove a lens in its capsule required a perfect technic and it could be mastered by good operators, provided they adhered strictly to the Smith teaching. More losses of vitreous would occur to anyone beginning the new operation, but the absence of postoperative inflammation would more than counterbalance the trouble caused by a slight loss of vitreous. Both eyes should be kept bandaged for nine days after the operation whether the lens had been removed in its capsule or the needle had been used. In thirty consecutive operations postoperative inflammation followed only in one case, and that was one that had a prolapsed iris which recovered with 20/20 vision. He did not recommend his needle except in cases where safe pressure had been used and the lens would not move. The more expert one became the less often would he be called upon to use the needle.

TYPICAL ALBUMINURIC RETINITIS FUNDUS WITH NEGATIVE FINDINGS

Dr. Michael Goldenburg presented a patient, H. W., aged 37, coppersmith helper, who came into

the clinic with the history of his sight becoming hazy in the left eye. Vision in the right eye had always been bad and when hunting patient was compelled to use his left eye. Vision at this time was 10/200 in each eye. Pupils were dilated with homatrophine and fundi examined. The right was found to be negative and with a high degree of hyperopia.

In the left the author found a marked neuro-retinitis with many hemorrhages which were limited to the circumference of about two papillary diameters of the disc. The peripheral part of the fundus was free of hemorrhages; the vessels were tortuous and the veins dilated, resembling to a marked extent a mild form of thrombus of the central retinal vein. Eight days later the fundus again was examined and found most of the hemorrhages absorbed, with a beautiful stellate glistening white deposit in the macular region, a typical picture of albuminuric retinitis.

Refraction:

O. D. 10/200 + 6.00 = + 1.50 Ax. 90 20/100.

O. S. 10/200 + .75 = + .50 Ax. 90 20/100.

Wassermann negative.

Urinalysis was made five times and all were negative in every respect. A twenty-four hour specimen was used. The average specific gravity was 1020.

The ethmoids and sphenoids manifested nothing upon inspection or x-ray plate. Blood pressure, 125; heart negative; fields contracted and no central scotoma for red or green; as to the brain, there were no signs or symptoms that would suggest a brain tumor. General physical condition of patient good.

DISCUSSION.

Dr. Clark W. Hawley thought that the case reported by Dr. Goldenburg was similar to two cases that he reported to the society some time ago. The description about the macula of Dr. Goldenburg's case was typical of the effect due to some toxemia. The stellate appearance of the exudate about the macula, according to the description, was perfect of the appearance about the macula of the speaker's two cases. The cause of the condition in his two cases was due to toxemia from the lower bowel. The first case was cured by an osteopath curing up a severe constipation. The second case he cured by a course of calomel. In both cases the exudate about the macula disappeared.

SOME EXPERIENCES WITH THE INTRANASAL PARTIAL RESECTION OF THE TEAR SAC.

Dr. J. Sheldon Clark, Freeport, Illinois, read a paper on this subject in which he summarized as follows:

What was to be expected from resection of the tear sac intranasally? 1. A functioning tear apparatus was the foremost attainment. 2. There was no possibility of an external scar, nor did the patient or the doctor have a dread that there would be a resultant scar. 3. There was no epiphora following the operation. 4. There was no possibility

of having to do a secondary operation upon the lachrymal gland on account of the troublesome epiphora. 5. Epiphora due to stenosis was readily cured by this procedure. 6. No other procedure would admit of trial in the presence of phlegmon. With the intranasal operation one might operate where there was phlegmon without fear and successfully. 7. A patient with tear sac trouble was very much more apt to accept the intranasal route than he was the external operation for the total excision of the sac.

DISCUSSION.

Dr. H. W. Woodruff, of Joliet, Illinois, had seen the results in two cases operated on by this method, and said they were good in both. The first one was operated by Dr. Clark at the Eye and Ear Infirmary last June, and the other one was shown here by Dr. Brawley one month ago. Whether this operation or other intranasal operations on the tear sac would entirely supersede the extirpation of the sac externally, was doubtful.

It would probably be contraindicated in dacryocystitis with cataract as a prophylactic measure before the cataract extraction. The extirpation would be more certain of removing a dangerous infective focus. It would be an ideal operation, however, in certain cases of epiphora with stricture, but without dacryocystitis. Such cases, for instance, which had been repeatedly probed without benefit and in which the eyes were constantly suffused with tears, would be greatly benefited by this operation. He would like to see this operation tried on such cases.

Dr. F. C. Todd, of Minneapolis, said he had not as yet performed the West operation and he was waiting until he could see it demonstrated by Dr. Clark, who had accepted an invitation to come to Minneapolis next month. The operation appealed to him as a rational procedure in cases where it was indicated. He intended to give it a fair trial. He would be disappointed if it did not meet his expectations as it seemed in many respects preferable to older forms of treatment. It was distinctly an operation for the rhinologist.

Dr. Richard J. Tivnen stated that the procedures at present in vogue for the relief of chronic interference with the drainage of the tear sac, and its associated disturbances, were far from perfect or satisfactory. The plan of the intranasal operation described by Dr. Clark which had as its basic idea the short circuiting of the duct, with the end in view of providing a functioning tear apparatus, appeared sound and scientific. The chief advantages it offered were the preserving of a drainage outlet, the avoidance of a scar externally, and its almost universal availability.

As to septal deflections, particularly those situated superiorly in the nasal fossae, they usually demanded operative correction before the operation on the duct could be successfully conducted. Since such deflections were commonly met with, this additional requisite operative interference might militate against the popularity of the procedure.

He should be glad to know from Dr. Clark what the real practical technical difficulties of the operation were.

Dr. Frank Brawley wished to ask Dr. Clark to give the after treatment more in detail. In the case operated by Dr. Brawley and presented at the November meeting, there had been some trouble with granulations covering the bone wound and these had been controlled with silver nitrate fused on a probe. To date, this case had shown no further evidences of pus, fluids could be syringed into the nose easily and the fluorescein test was positive, though required several minutes.

Dr. J. A. Pratt, Aurora, Illinois, heartily endorsed the intranasal drainage of the lachrymal sac. Although both times he was in Vienna he took the operative work of the excision of the lachrymal sac under Dr. Meller, he had never practiced the operation for the ultimate result of the continual toilet of the eye, and the lack of drainage of the conjunctival sac never appealed to him, and he had relied upon dilatation and the style.

Three weeks ago he did the West operation on a patient who had had unsatisfactory results with the scar, with the most happy results. The patient now was entirely free of her trouble. The operation was performed as Dr. Clark had described up to the point of opening the sac, when he found he could not grasp the sac with the West forceps. He had the assistant push out the sac with the probe as directed and then he curetted through the sac with a small sharp probe as directed.

In his opinion when we had established this short route drainage into the nose, we would cure nearly all the ills of the lachrymal sac.

Dr. R. H. Good expressed the opinion that in the near future most diseases of the lachrymal sac requiring surgery would be operated intranasally. He objected to the term resection of the sac because it was misleading, in that it left the impression that the entire sac was resected. In reality it amounted to simply slitting the sac.

In regard to the employment of morphin before operating on the nose and throat, he had abandoned this some years ago on account of the fact that the patient might have a severe hemorrhage after being placed in bed and being in a drowsy condition, swallow the blood without the nurse or the patient knowing that it was a hemorrhage.

Dr. Yankum had brought out the point that many of the tear sac troubles were due to the closure of the nasal duct on account of the bony foramen being too small. By removing the nasal bony wall of this foramen and slitting the duct all the way up into the sac, it had given good results without the more radical procedure of resecting a part of the sac.

The use of the bur for the West operation accomplished the same results and could be much quicker and more easily performed.

Dr. Clark, in closing the discussion, stated that the operation was of the greatest value in dacryocystitis as a preliminary to cataract extraction, as well as in the other conditions named in the paper. In fact, this was one of the conditions best suited to the intranasal procedure.

As to the details of the after treatment, there was nothing particularly different to add from what was given in the paper. Excessive granulations should be combated here as in other nasal work.

The operation was not so highly technical, and yet it was one which should only be done by those who are accustomed to working high up in the nose. As in some other nasal operations one should be able to "see with his fingers" as well as by the aid of direct vision. He spoke of the possibility in some instances, of having to do more than the simple work on the floor of the sac. Occasionally a high submucous partial resection of the septum would have to be made, and the pyriform process and the anterior end of the middle turbinate would have to be resected.

As to its applicability in so-called hernias of the sac, in all this work it was simply a question of drainage and once this was established and maintained, it was like it was in other situations in the body, in that healing took place. One of the points made was that this operation was indicated in the presence of phlegmon, or where the process had extended beyond the sac.

THE LOCALIZATION OF FOREIGN BODIES IN THE EYE.

Dr. Hollis E. Potter stated that steel, iron, iron rust, copper, brass, cement, stone, glass and wood were the most common bodies met with. Of these, wood was invisible unless painted. Glass, stone and cement were of medium density, but were visible in any appreciable quantity. The heavy metals were easily demonstrated.

Magnetic bodies, such as iron and steel, were not infrequently shown by x-rays when negative to the magnet test. When removed by magnets a pre-

vious knowledge of the position permitted an extraction with minimum laceration.

When sclerotomy was necessary before the extraction, accurate localization was of prime importance. The present day atrophy was sufficient as a guide for sclerotomy.

Simple plates were useless for accurate or even approximate localization. Some mechanical system must be adopted. The system as devised and perfected by Sweet was most accurate and easily used. One who did this work should localize every case he could so as to become proficient and uniformly dependable.

The author demonstrated two of the latest types of Sweet's localization apparatus. He also demonstrated several plates, lantern slides and charts.

DISCUSSION.

Dr. Richard J. Tivnen stated that the value of the x-ray as an aid in diagnosis of foreign bodies involving the ocular structures was well recognized. The radiologist had perfected his technic and overcame the difficulties of localization of the foreign body to such a degree that it was now possible for the ophthalmologist to look forward with confidence in such cases for exceedingly valuable assistance from this source. The painstaking and instructive presentation of the subject by Dr. Potter deserved commendation and support.

He thought all ophthalmologists had reached the conclusion that skiagraphs of the eye, in so far as the diagnosis and localization of foreign bodies were concerned, belonged to the domain of radiology quite apart from the rest of the science, and that men who became competent in this branch of the subject should be recognized as specialists in this particular field of radiology. This being true, it would seem the part of wisdom for the ophthalmologist to support in a practical way those men who are willing to specialize in this subject and who were willing to cooperate with ophthalmologists in solving the problems which this class of cases presented.

It had been his experience that one skiagraph was oftentimes insufficient to establish a positive diagnosis, and in all doubtful cases he insisted upon at least two. Numerous experiences had shown the utter unreliability of accepting as conclusive either the statements of the patient, the presence or absence of a wound of entrance, the negative response of the magnet and even the negative x-ray plate. The average case, however, would be discovered by an exhaustive interrogation of these several clinical evidences.

In all suspected foreign body cases he had come to follow as a routine procedure, first, obtaining a complete history of the accident, with especial reference to accounting for the foreign body; second, making a thorough examination, including the visual acuity, tension, fundus, etc.; third, making skiagraphs, two or more, in doubtful cases, and fourth, applying the electric magnet.

The surgeon should learn to interpret the skiagraph himself, as such a study would well repay the effort expended.

Paul Guilford,
Secretary.

DE KALB COUNTY.

The De Kalb County Medical Society met in regular session at the city hall, De Kalb, Friday, January 29, 1915. Meeting called to order by Vice-President L. E. Barton, with the following members present: Drs. C. E. Smith, J. M. Everitt, O. J. Brown, M. C. Munn, J. A. Badgley, J. S. Rankin, J. H. Riley, L. E. Barton and J. B. Hagey.

Dr. Clifford Smith presented a paper on "Concom-

itant Squint," illustrating the same with clinical cases, which showed very conclusively the clever work being done by him. An interesting discussion, followed by Drs. C. B. Brown, J. M. Everett, L. E. Barton and O. J. Brown.

Dr. Barton showed an x-ray photograph of a tack lodged in the right bronchus of a child. The patient was operated on eight weeks after accident and tack was removed by low tracheotomy with complete recovery.

The following were voted into the society: Dr. H. W. Trigger, Sycamore; Dr. Willis, Fairdale, and Drs. Down and Dinny, Sandwich. The board of censors were instructed to report on Dr. J. M. Postle's application for membership at next meeting.

The secretary was instructed to send flowers at his discretion to sick members of the society; also to give official notice of the death of a member to the ILLINOIS MEDICAL JOURNAL and to send a floral tribute to the family of the deceased. Upon the death of a member resolutions of the society were to be published in a county paper. The secretary was empowered to give a dinner to members of the society when he should deem it convenient to do so, in order to foster good fellowship.

Next meeting to be in Sycamore on the last Friday in April, 1915.

J. B. HAGEY,
Secretary.

HARDIN COUNTY.

Your recollection of any previous report from this society is, perhaps, not vivid.

We have a membership of two—president and secretary-treasurer.

Meetings are held daily.

Hours, any that suit our convenience.

Subjects discussed, miscellaneous and general. We don't follow the post-graduate course very closely.

Attendance, the entire membership.

Those taking part in the discussions, both of us. The president generally leads and closes the discussion.

Place of meeting, store of Paris Drug Company.

Social and ethical relations, the most congenial.

Next regular meeting, tomorrow.

(Signed) BOTH OF US.

LAKE COUNTY.

The Lake County Medical Society held its regular quarterly meeting January 27, 1915, at the Y. M. C. A. clubrooms in Waukegan. The entire program was given over to the subject of "Fractures" and all the papers were read by local men. Needless to say, it was an interesting as well as an enthusiastic session.

The following members were present: Drs. Barker, Bellows, Bouton, Brown, Budde, Ambrose, Foley, Gourley, Gavin, Kalowsky, O'Neil, H. B. Roberts, Sheldon, Taylor, Tombaugh, Wright and Watterson. At 7 p. m. a delicious turkey dinner was served by the ladies of the Presbyterian church.

After dinner President Taylor called the meeting

to order and we proceeded with the general order of business. Drs. R. B. Jacks, Highwood, and H. J. Ullmann and John P. O'Neil of Highland Park were elected to membership. Dr. L. T. Tombaugh gave a short talk on the benefits afforded us as members through legal protection by the state society. The following program was then given and only the absent members were the losers, for the subjects were treated in a most thorough and painstaking manner and many interesting as well as useful points were brought out on this particular branch of practice, which often proves a bugbear to the profession as it is so productive of malpractice suits:

"Treatment of Fracture by Lane Plate," Dr. J. C. Foley. Discussion opened by Dr. F. L. Gourley.

"Fractures Involving Hip Joint," Dr. E. F. Gavin. Discussion opened by Dr. J. P. O'Neil.

"Colles' Fracture," Dr. J. L. Taylor. Discussion opened by Dr. F. M. Barker.

"Fractures of Clavicle," Dr. H. B. Roberts. Discussion opened by Dr. L. T. Tombaugh.

Discussion of the papers was entered into heartily by all present and, taking it all in all, the meeting was quite a success.

Our next meeting will be held in Highland Park early in April.

C. S. AMBROSE,
Secretary-Treasurer.

MADISON COUNTY.

The February meeting of the Madison County Medical Society, held in Venice on February 5, was highly successful and was largely attended. Considering the inclement weather and the fact that Venice is in an extreme corner of the county, the attendance was all that could be desired, much to the gratification of the local profession. Dr. John P. Hale of Alton was elected to membership and Dr. E. A. Cook of Alton was appointed to represent our society in the section of public health and hygiene at the next annual meeting of the state society. The committee on stereopticon was instructed to renew their investigation and was given power to act. Dr. Heber Roberts of Belleville gave a lecture on "Radium," which was very instructive and highly appreciated. He exhibited many pictures taken before and after treatment, showing what could be done with this agent.

Dr. George W. Cale, Jr., of St. Louis, read a paper on "Fractures," demonstrating the Lane method of "bone plating." He illustrated his subject by exhibiting many x-ray photographs, showing the original fracture and the end result after plating. Great interest was shown throughout the whole session and the discussion that followed both efforts was spontaneous and spirited. The absence of a stereopticon was deeply deplored, as its use would have added much to the elucidation of both subjects.

Those present were: Drs. Harrison, Luster, Burroughs, Schreifels, Siegel, Kerchner, J. W. Scott, R. B. Scott, Cook, E. F. Fischer, Reuss, Dorr, Johnson,

Riley, Hamm, Theodoroff, Hirsch, Binney, W. H. C. Smith, Barnsback, Ferguson, Baker, Kiser, Schroeder, Lemen and E. W. Fiegenbaum. Visitors: Dr. George W. Cale, Jr., of St. Louis, and Dr. and Mrs. Heber Roberts and Dr. A. L. Reuss, of Belleville

Our March meeting will be held in Granite City on March 5, 1915.

E. W. FIEGENBAUM,
Secretary.

MORGAN COUNTY.

Regular Meeting, January 24, 1915.

The Morgan County Medical Society met January 14, 1915, at 8 p. m., nineteen members present.

The paper of the evening was read by Dr. J. M. Elder of Franklin, Ill., on "The Treatment of Croupous Pneumonia." Dr. Elder gave a detailed account of his treatment. The paper was discussed by Drs. D. E. Baxter, C. E. Cole, E. L. Crouch, T. J. Pitner, H. C. Woltman and G. H. Stacy.

THOMAS G. McLIN,
Secretary.

Regular Meeting, February 11, 1915.

The Morgan County Medical Society met in regular session February 11, 1915, with twenty-four members present; visitors, Dr. Wilma H. Jacobs of Jacksonville, recently from Wilmington, and Dr. W. H. Garrison of Pearle, Ill.; also a large number of veterinarians, dairymen, and other interested parties. Total number present, 78.

The lung motor, recently placed at the disposal of the city by the traction company, was demonstrated, and the society recommended that it be placed with the ambulance, where it could be most readily transferred to any part of the city.

Dr. E. J. Strickler was elected to membership by transfer from Hardin county, Kentucky.

Papers of the evening on "Foot and Mouth Disease" were read by W. B. Holmes, D. V. S., and Walter L. Frank, M. D., Dr. Holmes reviewing the subject from a veterinarian view and Dr. Frank reviewing it in relation to its occurrence in man. C. E. Scott, D. V. S., of Jacksonville, led the discussion and gave his experience with the disease in this county. Stated that he was called to see a bull and made a diagnosis of foot and mouth disease, and called a Federal man who confirmed the diagnosis. Within a few days almost the entire dairy was affected, showing the rapidity of the spread of the epidemic.

In the discussion which followed, Dr. Holmes and Dr. Frank were asked whether the disease had occurred in man during this epidemic. Dr. Holmes said that Adolphus Casper, D. V. S., stated that one child near Tallula, Ill., had contracted the disease from infected milk. It is not known whether or not this case has been reported in medical literature. No other case was mentioned.

Dr. King, city health warden, asked what should be done in case someone developed the disease in this city. Strict quarantine regulations were advised.

Some thought it was not necessary, as the disease is quite rare in man, considering its prevalence in animals.

Mr. C. A. Rowe emphasized the possibility of dogs spreading the disease from one herd to another and advocated the desirability of legislation against stray dogs.

THOMAS G. McLIN, M. D.,
Secretary.

VERMILION COUNTY.

The Vermilion County Medical Society met February 8 in the city council chamber, Danville, and was called to order by President Jones. The minutes of the January meeting was read and approved. Applications for membership by Drs. H. B. and Maggie Downs were read and referred to the Board of Censors. An extensive communication from the State Board of Health, in regard to illegal practitioners, was read. The motion passed that the president appoint a committee to wait on the state's attorney relative to illegal practice cases, as there were no funds with which to employ attorneys in these cases. The president appointed on this committee Drs. Coolley, Morton, F. N. Cloyd, W. J. Brown and J. M. Guy. Communication from Dr. R. A. Brown of Humrick was read. Motion that the society remit Dr. Brown's dues for 1914 and that secretary so inform Dr. Brown, on account of Dr. Brown's continued illness, was passed.

Program for the evening:

"Foreign Bodies in the Eye," Dr. C. P. Hoffman. Dr. Hoffman was absent.

"Diseases of the Tonsils," Drs. Clark and Gleeson.

The papers were instructive and interesting and were very thoroughly discussed by Drs. Morton, Dale, Guy, Current and Fisher. Cases were reported by Drs. Gleeson, Guy, Miller and Crist. Dr. Gleeson's case of sarcoma of the tonsil which had been treated for quinsy successfully removed. Dr. Guy, case of ununited fracture in a diabetic, successfully treated at St. Elizabeth's clinic in 1914. Miller, case of pancreatic cyst. Crist, pyelonephrosis kidney simulating appendiceal abscess.

Dr. Morton spoke of the destitute condition of the Belgian physicians and moved that we send \$20 to their relief fund. This motion was amended by Dr. Miller to read that this be made \$25. Both motions carried, and the secretary was instructed to send this money.

The April clinic to be held at St. Elizabeth's Hospital was discussed and Dr. Dale was appointed to confer with the Sister Superior on the matter and to report to the president.

Nineteen members were present, including Drs. Clark, Gleeson, Coolley, Dale, Satterlee, Brant, Fisher, Vogt, Hole, Lenhart, Cass, Guy, Morton, F. N. Cloyd, Jones, Crist, W. J. Brown, Chaffee and A. M. Miller. One visitor, Dr. Effie Current.

Meeting adjourned in form.

O. H. CRIST,
Secretary.

WINNEBAGO, BOONE, KANE, McHENRY AND STEPHENSON COUNTIES.

A joint meeting of the medical societies of Boone, Kane, McHenry, Stephenson and Winnebago counties was held at Unity Hall, Rockford, Tuesday, February 9, at 10 a. m. Owing to the unavoidable absence of the local president, Dr. H. M. Starkey, who was out of the city, Vice-President Dr. E. W. Goebel served as temporary chairman. Sixty local doctors and some thirty visiting doctors were in attendance.

The first speaker on the program was Mr. Frank Bertrand of Rockford, deputy internal revenue collector, who had kindly consented to talk on the Harrison Narcotic Drug Law recently passed in congress. Local druggists and nurses had also been invited to attend this feature. Following Mr. Bertrand's address the doctors partook of luncheon in Unity Hall dining room.

At one o'clock the regular session began. Dr. Emil Windmueller of Woodstock, councilor of first council district, was asked by Dr. Goebel to serve as chairman. Dr. Windmueller called upon the local secretary to read a letter from Dr. H. M. Starkey, who was in Washington, D. C. This letter expressed greetings to all present and a hearty welcome to all visiting doctors. The following program was then rendered:

1. Address of welcome. Dr. D. Lichty, Rockford.
2. Address. Dr. A. L. Brittin, president Illinois State Medical Society, Athens.
3. "Uterine Hemorrhage, With Lantern Slide Demonstrations of Its Pathology." Dr. J. H. Stealy, Freeport.
4. "The Advantages of the Hospital in Small Cities, With Plans for Its Organization and Management." Dr. H. West, Woodstock.
5. "Some of the Rare Complications Following Laparotomy." Dr. F. C. Schurmeier, Elgin.
6. "Some Infections of the Head and Their Causes." Dr. J. S. Clark, Freeport.
7. "Diagnosis and Treatment of Septic Conditions in the Abdominal Cavity." Dr. J. E. Allaben, Rockford.
8. "Nervous Disorders in Relation to Public Health." Dr. S. D. Wilgus, Rockford.
9. "Twilight Sleep." Dr. A. L. Mann, Elgin.

Brief discussions followed some of the papers. The visiting doctors gave a vote of thanks to the Winnebago County Medical Society for all courtesies shown at this meeting.

Personals

Dr. Norman H. Weston dislocated his right wrist and ankle in the Central Y. M. C. A. gymnasium, February 10.

Dr. William Healy, Winnetka, has passed the

examination for director of the Juvenile Psychopathic Institute, Chicago, with the highest average.

Dr. Albert E. Mowry, who has been a member of the faculty of the Northwestern University Medical School for the past fifteen years, has been appointed Professor of Genito-Urinary Surgery and Venereal Diseases at the Chicago Hospital College of Medicine.

Dr. George F. Butler, Medical Director, Mudlavia, Kramer, Ind., will hold office hours in Chicago, 122 S. Michigan avenue, from 2 p. m. to 4 p. m., on the first and third Saturday in each month, for the accommodation of those desiring to consult him personally, or who wish special information concerning the Mudlavia treatment. Appointment may be made in advance by addressing Dr. Geo. F. Butler, Medical Director, Mudlavia, Kramer, Ind.

News Notes

—County Judge Scully has named the following advisory commission to assist in the hearing of lunacy cases in Cook County: Drs. Hugh T. Patrick, Peter Bassoe and Harry L. Pollock, Chicago.

—A new hospital to cost about \$100,000 and to be known as the Concordia Evangelical-Lutheran Hospital, is to be erected on Haddon avenue, near Kedzie, where the trustees have acquired a tract 300 by 117 feet.

—Dr. Fred H. Albee of New York will address the Iowa and Illinois Central District Medical Association in an illustrated lecture on the evening of March 23, meeting to be held at Blackhawk Hotel in Davenport.

—The Fenger Fellowship of \$600 for 1915 has been assigned to Dr. George L. Mathers of the resident staff of the Cook County Hospital, Chicago, who will carry on work on certain bacteriologic problems in pneumonia.

—Friends of Dr. Daniel A. K. Steele, dean of the Medical School of the University of Illinois, Chicago, gave a dinner in his honor, February 1, at the Hotel La Salle, at which about ninety were present. Dr. Charles S. Bacon presided as toastmaster.

—McKendree College at Lebanon was closed early in February on account of the reappearance

ance of scarlet fever in the school. Two new cases were found. This is the second time within a month that the school has been closed on account of this disease.

—February 6 Decatur was placed under general quarantine by the State Board of Health on account of an epidemic of scarlet fever. It was reported that there were about 100 cases in the city and regulations were adopted as to visiting public places, violating quarantine rules, etc.

—The Freeport Academy of Medicine and Surgery was organized February 5, with an initial membership of 18 and the following officers were elected: President, Dr. William B. Peck; vice-president, Dr. D. C. L. Mease; secretary, Dr. Theophil J. Holke; treasurer, Dr. Edgar J. Torey.

—A committee of medical men from the Winnebago County Medical Society of Rockford presented a petition to the mayor, January 30, signed by practically every member of the society, requesting him not to accept the resignation of Dr. Daniel Lichty, Rockford, from the board of the Tuberculosis Sanatorium.

—The Medical Society of the State of New York will hold its one hundred ninth annual meeting in Buffalo, April 27-29, 1915. Owing to the war this is expected to be one of the largest medical meetings of the year. Dr. Edward A. Sharp, 481 Franklin street, is chairman of the committee on registration and information.

—*The American Practitioner*, New York, has been purchased by the Urologic Publishing Association and consolidated with *The American Journal of Urology, Venereal and Sexual Diseases*. The consolidated journal will be under the editorship of Dr. William J. Robinson. The publication offices will be at 12 Mt. Morris Park, West, New York City.

—The authorities of Michael Reese Hospital announce, as the result of their experience after a series of about forty obstetric cases treated by the scopolamin-morphin anesthesia, the so-called "Twilight Sleep," that they will not use this method in labor except with the express guarantee of the patient that the hospital shall be free from all liability as regards ill results to the mother or the child.

—The office of the internal revenue collector in Chicago has been a busy place the past few

weeks with physicians and druggists applying for licenses to comply with the new Harrison Antinarcotic Law. It is supposed that a number of "dope fiends" have applied for licenses as physicians and druggists, and taken a risk of severe penalty to secure supplies. A membership card in a medical society is a very convenient means of identification.

—The warden of the State Penitentiary, Joliet, has called in consultation Drs. George A. Zeller, Peoria; Eugene G. Cohn, Hospital, and H. Douglas Singer, director of the State Psychopathic Institute, and George Ordahl, state psychologist, to start plans for the installation of a psychopathic institute in the penitentiary. The plan as outlined deals with the segregation of prisoners according to their mentality. The four most important things to be taken up in connection with every prisoner are heredity, eugenics, environment and opportunity in life.

—On April 3 an examination will be held at Anna, Carbondale, Chicago, Dunning, East St. Louis, Elgin, Jacksonville, Kankakee, Lincoln, Macomb, Mt. Vernon, Peoria, Pontiac, Springfield, Urbana and Watertown to provide an eligible list for the position of food bacteriologist in the Chicago office of the State Food Commission. The salary at present is fixed by law at \$1,800 a year. The limits recommended by the State Civil Service Commission are \$150 to \$175 a month. The examination will be open to non-residents as well as residents of Illinois over 25 years of age. The duties of the position involve making bacteriological examinations (and interpreting the results of such examinations) of milk, ice cream, eggs, meat, tomato products, etc., in accordance with the dairy, food and sanitary laws.

—*The International Hospital Record*, which has been published for eighteen years by the Sutton Publishing Company, Detroit, has been purchased by the Modern Hospital Publishing Company of St. Louis and Chicago, and will be merged with *The Modern Hospital* beginning with the March issue. *The Modern Hospital* is a monthly magazine devoted to the building, equipment and management of hospitals, sanatoriums and kindred institutions. Recently it has opened several new departments relating to public health problems, such as "Philanthropy and the Public Health," "Prevention of Tuberculosis," "Prevention of Blindness," "Dispensary and

Out-Patient Work," and "Life Extension." The editorial offices of *The Modern Hospital* are located in Chicago and the publication offices in St. Louis.

Marriages

JOHN FERDINAND GOLDEN, M. D., to Miss Florence F. Lydon, both of Chicago, January 19.

MATHER PFEIFFENBERGER, M. D., to Ethel Hortense Rodgers, both of Alton, January 20, 1915.

Deaths

SAMUEL T. BALDRIDGE, M. D. State University of Iowa, Iowa City, 1887; a member of the Illinois State Medical Society; died at his home in Chicago, February 2, aged 52.

JOHN DAMASCUS BAMBENEK, M. D. Northwestern University Medical School, Chicago, 1908; died at his home in that city about January 7, from pneumonia, aged 33.

MONTAGUE J. JONES, M. D. Medical College of Ohio, Cincinnati, 1871; for several years a practitioner of Peoria; died at his home in Chicago, January 27, aged 74.

JOSEPHUS FOREMAN, M. D. Eclectic Medical Institute, Cincinnati, 1868; for many years a resident of Patterson, Ill.; died at his home in that place, December 24, aged 70.

JOHN CALVIN CRAIG, M. D. University of Michigan, Ann Arbor, 1873; of Liberty, Ill.; died in Conway, Ark., Dec. 14, 1914, from sarcoma of the jaw, following an operation, aged 66.

DIEDRICH A. BRUMUND, M. D. Northwestern University Medical School, Chicago, 1900; also a graduate in pharmacy; until three years ago a practitioner of Chicago; died suddenly at his home in St. Stephen, N. B., January 1, aged 40.

WILLIAM G. SCHMIDT, M. D. Missouri Medical College, St. Louis, 1891; a practitioner and druggist of Quincy, Ill.; died at his home, January 16, from disease of the liver, aged 54.

JOHN WEIR WIESTLING, M. D. University of Pennsylvania, Philadelphia, 1866; died at his home in Vandalia, Ill., January 19, from dropsy, aged 72.

CHARLES A. E. LESAGE, M. D. Northwestern University Medical School, Chicago, 1897; a

Fellow of the American Medical Association; once president of the Dixon Medical Association and secretary of the Lee County Medical Society, and a specialist on diseases of the eye, ear, nose and throat, of Dixon, Ill.; a member of the staff of the Dixon Public Hospital; died at his home in that city, January 22, aged 42.

D'ORSAY HECHT, M. D. Northwestern University Medical School, 1898; associate professor of nervous and mental diseases in this college; attending neurologist Michael Reese, Wesley and other hospitals of Chicago; a Fellow of the American Medical Association; president of the Mississippi Valley Medical Association 1913-14; a member of various neurologic and psychologic societies; died suddenly at his home in Chicago, February 16, 1915, of angina pectoris, aged 41.

CHARLES WARREN JOHNSON, M. D. Jefferson Medical College, of Philadelphia, 1872; a practitioner for nearly thirty years of Litchfield, died at his home, January 23, 1915, of cerebral hemorrhage after a short illness. Dr. Johnson was born in Hong Kong, China, in 1848, where his parents were engaged in missionary work. His boyhood life and the first years of his medical career were spent in the New England states. He was for many years the health officer of his home city.

NEW AND NON-OFFICIAL REMEDIES.

During January the following articles have been accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-Official Remedies:

Hynson, Westcott & Co.: Glycotauro Capsules (half size).

Eli Lilly & Co.: Alcresta Ipecac Tablets.

Merck & Co.: Canathardin, Merck.

H. K. Mulford Co.: Luetin.

Canthardin: The anhydride of cantharidic acid preparations of cantharidin are used in place of corresponding preparations of cantharides and have the advantage of being cleanly and more uniform in strength. A 0.1 per cent. solution of cantharidin in a fixed oil raises blisters when kept in contact with the skin (*Jour. A. M. A.*, Jan. 2, 1915, p. 53).

Benzene, Medicinal: A liquid consisting almost entirely of benzene, C_6H_6 . Medicinal benzene has been used in the treatment of leukemia. In many cases the improvement is such as to suggest an apparent cure. A large number, if not all, cases relapse or succumb to the toxic action of the benzene. The drug is in the experimental stage and should be used with caution (*Jan. A. M. A.*, Jan. 2, 1915, p. 54).

Benzene, Merck, H. P. Crystallizable: A brand of medicinal benzene. Merck & Co., New York (Jour. A. M. A., Jan. 2, 1915, p. 54).

Leucocyte Extract: An extract of leucocytes obtained from exudates produced in the pleural cavity of rabbits or other animals. It is said to be of value as an aid to specific serums or antitoxins and vaccines. It is claimed to be of use itself where the nature of an infection is not known. Its use is in the experimental state (Jour. A. M. A., Jan. 2, 1915, p. 54).

Leucocyte Extract, Squibb.: A leucocyte extract prepared according to the method of Hiss. It is sold in syringes containing 10 c. c. E. R. Squibb & Sons, New York City (Jour. A. M. A., Jan. 2, 1915, p. 54).

Silver Citrate, Merck: A brand of silver citrate admitted to New and Non-Official Remedies. Merck & Co., New York (Jour. A. M. A., Jan. 2, 1915, p. 54).

Silver Lactate, Merck: A brand of silver lactate admitted to New and Non-Official Remedies. Merck & Co., New York (Jour. A. M. A., Jan. 2, 1915, p. 54).

Digitoxin, Merck: A brand of digitoxin admitted to New and Non-Official Remedies. Merck & Co., New York (Jour. A. M. A., Jan. 2, 1915, p. 54).

Luetin: An extract of the killed cultures of several strains of the *Treponema pallidum*, the causative agent of syphilis. It is employed for the diagnosis of syphilis. It is of use in the examination of tertiary cases, but rarely gives a positive reaction in primary cases or in untreated secondary cases. Luetin is supplied as:

Luetin, Mulford: Packages sufficient for a single test, for five tests and for fifty tests. The H. K. Mulford Co., Philadelphia (Jour. A. M. A., Jan. 23, 1915, p. 343).

Glycotauro Capsules (half size): Each capsule contains Glycotauro (see N. N. R.) 0.15 Gm. Hynson, Westcott & Co., Baltimore, Md. (Jour. A. M. A., Jan. 23, 1915, p. 353).

The closed window shuts out the pure life-giving air that you need to conserve your health and promote bodily health and vigor.

A clean skin means a healthy body. Soap and water with a coarse, rough towel, will do the trick.

In diphtheria, delay in the administration of antitoxin means death to the child. Moral, call your doctor early.

The old and oft-repeated saying, "A little knowledge is dangerous," is not wholly true; for even a little knowledge on health matters is better than complete ignorance. But no one should be content with just a little knowledge so long as there is opportunity to get more. Neither should we be puffed up with nor over-rate the little we have, but, as the advertising man says, "keep everlastingly at it" to get more.

It is the daily experience of medical health officers to find people who rebel against or chafe under the infliction of quarantine. In many cases, in most, perhaps, this opposition is due to ignorance as to the necessity for protecting those who are well from those who are sick with a contagious disease.

Then, too, in many such cases, there is a lack of due regard for the rights of others, an overlooking of the principle that we owe it to our neighbors to give to them the same protection that we have a right to expect or demand from them under the same circumstances. Here is an instance showing how contagion is spread:

A mother whose child had scarlet fever and whose home was under quarantine, violated the law by going to a department store where she purchased a coat on approval and took it home with her. A day or two later the garment was returned and was bought by a woman in a nearby town. Within five days her only child, a daughter, aged 5, came down with scarlet fever and ten days later died. This case was the starting point of an epidemic in that town which was not checked until there had been eighty cases and four deaths.

The above is only a sample of hundreds of similar cases that might be cited, as showing how contact of the well with the contagious sick means the spread of disease, suffering and death in a community.

An hour spent each morning working in the garden or caring for the lawn will put you in fine fettle for the day's work in the office. In fact, it is about the best "spring tonic" one can take.

"Most men eat far too much, and they would be far happier, far healthier and far more capable of resisting disease if they would eat less. A scientific study of foods would make it possible for a large proportion of the population getting small wages to save and accumulate some portions thereof."

In the light of recent events, this statement should prove helpful to those who are complaining about the high cost of living—*From Bulletin Chicago Department of Health.*

Book Notices

OBSTETRICAL NURSING. A Manual for Nurses and Students and Practitioners of Medicine. By Charles Sumner Bacon, Ph.B., M.D., Professor of Obstetrics, University of Illinois and the Chicago Polyclinic; Medical Director, Chicago Lying-In Hospital and Dispensary; Attending Obstetrician, University Chicago Polyclinic, Henrotin, German and Evangelical Deaconess Hospitals. 12mo, 355 pages, illustrated with 123 engravings. Cloth, \$2.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This is one of the most useful books for nurses we have seen. Nearly every nurse at some time or other does some obstetrical nursing, and while the book is devoted mainly to the field of obstetrical

nursing, it contains much that should be read by every nurse who does private duty.

Dr. Bacon clearly indicates the difficulties encountered by the nurse in the private home, and how the nurse may meet them successfully. Too many nurses, recently from institutions, have unnecessary difficulties in the homes, and many of these are pointed out. The recently graduated physician will find much in this book that he has not had in his medical course, and will benefit from the reading. We recommend it highly to all nurses.

MODERN MEDICINE. Its Theory and Practice. In Original Contributions by American and Foreign Authors. Edited by Sir William Osler, Bart, M.D., F.R.S., Regius Professor of Medicine in Oxford University, England; formerly Professor of Medicine in Johns Hopkins University, Baltimore; in the University of Pennsylvania, Philadelphia, and in McGill University, Montreal; and Thomas McCrae, M.D., Professor of Medicine in the Jefferson Medical College, Philadelphia; Fellow of the Royal College of Physicians, London; formerly Associate Professor of Medicine in Johns Hopkins University, Baltimore. In five octavo volumes of about 1,000 pages each. Volume IV. Diseases of the Circulatory System; Diseases of the Blood; Diseases of the Lymphatic System; Diseases of the Ductless Glands; Vasomotor and Trophic Disorders. Just ready. Price per volume, cloth, \$5.00 net; half morocco, \$7.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

The fourth volume of this great work is just from the printers and its thousand pages are devoted to Diseases of the Circulatory System, Diseases of the Blood, Diseases of the Lymphatic System, Diseases of the Ductless Glands, Vasomotor and Trophic Disorders.

The high standards of the work are maintained in this volume. The subjects are all treated exhaustively by the several authors, and Dr. Osler himself has contributed much to this volume. It of course conforms in size, style and mechanical make-up with the three preceding volumes.

We believe this voluminous work on scientific medicine is one which no practitioner can afford to do without, and no medical library is complete without it.

INFANT FEEDING, ITS PRINCIPLES AND PRACTICE. By F. L. Wachenheim, M.D., Attending Physician Sydenham Hospital and Mount Sinai Dispensary, New York City. 12mo, 340 pages. Cloth, \$2.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

One of the most useful little books for the general practitioner we have seen is "Wachenheim's Infant Feeding." He presents facts as accepted by the leading pediatricists; and studiously keeps away from long-drawn-out theories. In addition to this his methods are practical. The book covers the field of infant feeding admirably well, yet is brief enough that anyone may have the time for its study. We recommend it to the profession.

DISEASES OF THE BRONCHI, LUNGS AND PLEURA. By Frederick T. Lord, M.D., Visiting Physician, Massachusetts General Hospital and Channing Home for Consumptives; Instructor in Clinical Medicine, Harvard Medical School. Octavo, 605 pages. Illustrated with 93 engravings and 3 colored plates, Cloth, \$5.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This work of Lord's on Diseases of the Bronchi, Lungs and Pleura is designed for a textbook on these subjects, and as such is an excellent work. The general practitioner will also be interested in the book because of its clearness of diagnosis in many of his troublesome cases.

The author has gleaned the literature of today and presents the facts in a clear and comprehensive manner. The etiology and pathology of each disease is presented fully and clearly. The use of the bronchoscope is fully explained and the indications for its use are stated. We recommend the work to the profession.

INFECTION, IMMUNITY, AND SPECIFIC THERAPY. A Practical Textbook of Infection, Immunity and Specific Therapy with special reference to immunologic technic. By John A. Kolmer, M.D., Dr. P. H., Instructor of Experimental Pathology, University of Pennsylvania, with an introduction by Allen J. Smith, M.D., Professor of Pathology, University of Pennsylvania. Octavo of 899 pages with 143 original illustrations, 43 in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$6.00 net; half morocco, \$7.50 net.

When Jenner gave to the world immunity to smallpox he also gave to the world the beginning of the science of immunity. It now seems strange that so long a time elapsed between this work of Jenner and the real work of Koch, during which time Pasteur did the only notably work in immunology.

If the study of immunity did accomplish but little for several decades, it is now fast coming into its own. No phase of medicine is advancing with such wonderful strides, and this work of Kolmer is not only abreast of the times but also has collected much data on this wonderful field of medicine.

A large part of the book is given to the laboratory technique of immunization and is given with great attention to detail. The book is generously illustrated and this aids the work very materially. Many of the illustrations are in colors. The book is written principally as a text-book for students, but as we are all students in this realm of medicine, it is especially valuable to the practitioner. We recommend it as a part of the doctor's armamentarium.

A LABORATORY MANUAL AND TEXTBOOK OF EMBRYOLOGY. By Charles W. Prentiss, A.M., Ph.D., Professor of Microscopic Anatomy in the Northwestern University Medical School, Chicago. Octavo of 400 pages with 368 illustrations, many of them in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$3.75.

The work is as important to the medical student as any work on anatomy or physiology, and a thor-

ough study of embryology is necessary for the full understanding of either of the other subjects.

This work of Prentiss' is written especially as a laboratory manual and textbook and covers this field admirably. The text is clearly written and studies the individual from the origin of the germ cell to maturity. The illustrations are especially worthy of mention and make the study of the text much more simple. Every student of medicine should have this book and study it. We recommend it to the teacher of embryology.

STUDENTS' MANUAL OF GYNECOLOGY. By John Osborn Polak, M.Sc., M.D., F.A.C.S., Professor of Obstetrics and Gynecology, Long Island College Hospital; Professor of Obstetrics in the Dartmouth Medical School; Gynecologist to the Jewish Hospital; Consulting Gynecologist to the Bushwick, Coney Island, Deaconess' and Williamsburg Hospitals, Brooklyn, and the People's Hospital, New York; Fellow American Gynecological Society, etc. 12mo, 414 pages, illustrated with 100 engravings and 9 colored plates. Cloth, \$3.00 net. Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This little book, while written primarily for the student, will be very useful for the general practitioner. The author does not discuss theories, but confines himself to the definitely established facts.

It is written in a very systematic manner and so arranged that the reader may digest it with the least time and effort.

Considerable emphasis is laid on diagnosis and treatment, and the important points have been italicized.

The busy practitioner will find it a valuable book with which to review the work of the day.

THE RED BOOK of Eye, Ear, Nose and Throat Specialists, containing the Names and Addresses of Medical Specialists in Diseases of the Eye, Ear, Nose and Throat for the United States and Canada, arranged according to States and Provinces—Ophthalmological and Oto-Laryngological Societies—Medical and Post Graduate Schools and Colleges—A Selected List of Books Pertaining to the Eye, Ear, Nose and Throat and Other Valuable Information. Also an Index to the Names in this book arranged alphabetically. First Edition. 1915. Price, \$3.00. Published by Lionel Topaz, 35 North Dearborn street, Chicago, Ill.

CORNELL UNIVERSITY MEDICAL BULLETIN. Volume IV. Number 2. October, 1914. Studies from the Department of Neurology. Published by Cornell University, 477 First avenue, New York City.

THE PRACTICAL MEDICIN⁵ SERIES, comprising ten volumes on the year's progress in medicine and surgery, under the general editorial charge of Charles L. Mix, A.M., M.D., Professor of Physical Diagnosis in the Northwestern University Medical School, and Roger I. Vaughan, Ph.B., M.D. Series 1914. *Obstetrics*, being Volume VII, edited by Joseph B. DeLee, A.M., M.D., with the collaboration of Herbert M. Stowe, M.D. Price, \$1.35.

Materia Medica and Therapeutics. Preventive Medicine. Climatology, Volume VIII, edited by George F. Butler, Ph.G., A.M., M.D., Henry B. Favill, A.B., M.D., Norman Bridge, A.M., M.D., Price, \$1.50. *Nervous and Mental Diseases*, Volume X, edited by Hugh I. Patrick, M.D., and Peter Bassoe, M.D. Price, \$1.35. Complete set, 10 volumes, \$10.00.

These three volumes are a review of all the new things that have been done in medicine and surgery in the last year. The use of this series is one of the best methods for a rapid review of all the advances in all the branches of medicine and surgery. The separate volumes are edited by men who know how, and the standard set by the previous volumes has been faithfully kept up.

A TEXTBOOK OF DISEASES OF THE NOSE AND THROAT. By D. Braden Kyle, A.M., M.D., Professor of Laryngology and Rhinology, Jefferson Medical College, Philadelphia. Fifth edition. Thoroughly revised and enlarged. Octavo of 856 pages with 272 illustrations, 27 of them in colors. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$4.50 net.

The fifth edition of this work indicates how it is received by the profession. It has been a favorite among medical students for many years. In its present form it deals extensively with Rhinology and Laryngology, and has brought hte study of these specialties down to the present.

The book presents the various topics in a very systematic manner, and goes into minute detail of the etiology and pathology of the various diseases. The author has been rather specific in his treatment and does not attempt to relieve all conditions by surgery. The book is a valuable one to students and general practitioners.

DIAGNOSTIC AND THERAPEUTIC TECHNIC. A Manual of Practical Procedures Employed in Diagnosis and Treatment. By Albert S. Morrow, M.D., Clinical Professor of Surgery, New York Polyclinic. Second edition. Thoroughly revised. Octavo of 834 pages, with 860 illustrations. Philadelphia and London: 1915. Cloth, \$5.00 net; half morocco, \$6.50 net.

The fact that a second edition of this work is published soon after the appearance of the first edition proves it to be an exceedingly popular work. It is the only work of its kind that the reviewer knows of that completely covers the field of diagnostic and therapeutic technic. It is profusely illustrated, which makes the subject matter easily understood.

It is a work that will often be consulted, containing many of the "small" things which are too often neglected in works on diagnosis or therapeutics.

A printer's error appears on page 619. Finger's ointment, 3 ounces of lanum being transposed into 30 c.c. metric system. One of the illustrations that would better have been left out is figure 170, showing vaccine blown out of a capillary tube with the mouth. However, barring these, one cannot do otherwise but recommend this unique work to the profession generally.

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Original Articles

EUTOCIA BY MEANS OF NITROUS OXID AND OXYGEN ANALGESIA—A SAFE SUBSTITUTE FOR THE FREI- BURG METHOD.*

FRANK W. LYNCH, M. D.,
CHICAGO, ILL.

From our present viewpoint, it seems quite remarkable that serious effort to rob labor of its pain and terror is of such recent origin. Charms and incantations have been used among the aboriginals for centuries, but there is no record of the use of narcotics, save in operations of unusual severity. Drugs possessing narcotic or anesthetic properties were known to the ancients, but their usage was restricted to surgery. Indeed, I can find no record of the employment of narcotics or anesthetics in normal labor until the papers of Simpson, in 1847. Yet the earlier literature abounds in expressions of hope for a drug that, as Benjamin Rush well said, would abolish the pain of labor without interfering with the contractions. For the most part, these remarks were accompanied by the report of a case delivered during drunkenness or during some nervous affliction which prohibited pain. Yet there is no doubt but that such drugs were known many years before Simpson demonstrated their value. Sir Humphrey Davy early attested the anesthetic value of nitrous oxid and suggested its employment in surgery in 1880. Faraday, in 1818, showed that vapor of ether produced similar anesthetic effects, yet these early observations were regarded at the time merely as scientific curiosities rather than as facts capable of practical application.

To Simpson belongs the remarkable honor of introducing ether, chloroform (1847), and the chloral (1869), into obstetrical practice. Ether, although early demonstrated in Boston in surgery, was not utilized there in obstetrics until

Keep so exhibited it in a normal case (April 7, 1847), after the appearance of Simpson's paper. It seems difficult to believe that the Biblical edict, "In sorrow thou shalt bring forth thy children," militated against the widespread adoption of these drugs. Yet many physicians refused to give them; many women to take them. Nearly all early writers, as Channing, seriously concerned themselves with this matter, and presented various interpretations of the original Hebrew which permitted the adoption of the new methods. Yet the seal of approval was not put upon it until Queen Victoria established its repute in 1853.

Chloroform soon supplanted ether in general popularity. The odor was more agreeable. It produced no irritation. The action was more rapid. It was not inflammable. A smaller quantity accomplished the same result. The drug appeared to be better borne than in non-pregnant condition, and the edict presently came forth that the pregnant woman enjoyed an immunity to its dangers. Later observations have shown that this is untrue. The statement has a germ of truth, that glycogen and nitrogen are usually stored during pregnancy, and Graham has shown that an excess of glycogen diminishes the danger from such anesthesia. Given a case, however, which has not gained normally, or has wasted during some toxemia, or has burned much glycogen during a long and tedious labor, and the well-known dangers of the drug are unduly multiplied.

Very early was it shown that the best results were obtained with incomplete anesthesia, since there was slight interference with the strength of the uterine contractions. The first stage of anesthesia—that of sopor—has been divided by Sanson into three parts, the initial stage of amelioration of pain; incomplete analgesia; and complete analgesia. The skilled anesthetist keeps his patient just short of complete analgesia in obstetrical anesthesia. The drug is given when the contraction of the uterus indicates to the obser-

*Read before the Chicago Medical Society, March 24, 1915.

ver's hand that the pain is starting. A few drops suffice. No attempt is made to continue the method in the interval between pains. Consciousness is disordered, not completely lost until the head comes over the perineum in this method of chloroform *a la reine*.

This method has been employed for many hours at a time. Snow maintained it for thirty-one hours; Prothern Smith for twenty-eight, and Simpson for fourteen, according to Allwright. Paul Bert early claimed that when thus intermittently given it could be maintained safely for many hours. Yet modern investigation has controverted this statement. There are other objections to the method. Comparatively few become skilled in giving it. The tendency is to give too much, or to start its use after a pain was under way, when the patient becomes excited and more concerned with getting enough anesthesia than in helping her labor. How often we heard the cry of "More! More!" when we used chloroform. There is no doubt that prolonged or deep anesthesia with chloroform or ether weakens the pains and favors hemorrhage. Both drugs are transmitted to the child and cause its anesthesia, as early shown by Ahlfeld. Chloroform may thus become an object of much danger, since Graham has shown it is largely responsible for many of the hemorrhagic diseases of the newborn. In consequence of fetal and maternal dangers, the use of ether and chloroform has become gradually restricted to the latter part of the second stage, leaving the woman to endure the rest of the labor as best she may.

There is no doubt but the evils resulting from the pain of childbirth are unduly exaggerated. Few believe that a nervous woman may better be delivered by a Cesarean than through the normal passages. Labor is too much of a lottery. We cannot always foretell its character. Yet, as a rule, it is well borne. Its hard pains are not long maintained. They are soon forgotten. The unskilled use of anesthetics undoubtedly has caused more harm in the past than the pains of labor. Yet there is no logical reason for pain during labor. It accomplishes no good. It is not necessary for health. It is not essential to firm uterine contractions, since births which were normal and spontaneous have been occasionally accomplished without pain. A safe method alone is needed.

No wonder, therefore, that women have turned to the scopolamine method as to manna from heaven. Spurred on by the lay press, they are demanding the treatment, convinced that it is harmless, but withheld without reason. For the most part, lay writers are responsible for this condition. They assume to be judges of the situation and the public is taking them at their professed valuation. The magazine articles are embellished with quotations from the literature, often unfairly chosen and sometimes misquoted. One who has evinced much activity in this field explains the failure of a series of the cases on the ground that the unstable hyoscine was used rather than the stable scopolamine.

The general practitioner is most anxious to adopt this method, if its safety and efficiency can be properly established. They are most anxious to adopt any method which will help the patient and secure proper compensation for the arduous work in this field, now so grossly underpaid. The so-called twilight sleep is only now under proper investigation. The whole truth is not yet known. It is entitled to careful study. The method has been exhibited in two other periods and classed as failure. The technique is now greatly improved. Many objections have been eliminated, but these remain: 1, The method is not suitable for all cases which come to labor. 2. It is not successful in all cases in which it is adjudged applicable. 3. It is not suitable for general practice. 4. It carries a potential danger to the child.

The restriction to selected cases is well shown in Gauss' first report, when he was desirous of applying the method to all the cases of the clinic. There were 731 cases during this period of investigation. The method was tried in 500 cases. It was successful in 381 cases. That is to say, 350 of these 731 women would possibly have liked to try it, but could not do so, because they came in too late in labor, or developed pains too rapidly or too slowly, or presented some marked abnormality, since nearly 40 cases were included for treatment which would now be rejected. The field for application has been enlarged only by avoiding cases which enter the hospital late in labor. It is perfectly true that the results are now occasionally astonishingly good, but there is no certainty of such result. On the contrary, mental disturbances may result, and cause much disquiet for many hours.

From the standpoint of pure theory, the method presents many faults. The procedure is theoretically perfect for the first stage, yet the first stage is usually neither dangerous nor difficult to withstand. Heart cases, pneumonias, typhoids and other toxemias pass safely through it, to meet trouble in the second stage. Were relief from pain possible in but one of these two stages, there is no doubt but the second would be selected for such protection. Yet the failures of the semimarcosis occur during this period. The second stage is prolonged and distorted from the normal picture. It commonly requires augmentation or artificial delivery. There is considerable danger to the child at this time. Proper asepsis is often impossible. Nor is the method ideal in its action. There is the objection common to all medicines, that a drug once given by hypodermic is beyond recall, although this is controlled in some degree by the rapid excretion. Yet the drug utterly fails to protect the brain. Sensory perceptions are not markedly inhibited in the proper doses of the method. The patient complains of pain and reacts to it as much as the motor inco-ordination will permit. Sensory perceptions are diminished by shading the lights, stopping the ears with cotton, and giving smoked glasses for the eyes, and restricting sounds and noises as much as possible. Yet stimulation of pain reaches the brain. The drug causes motor inco-ordination rather than a checking of sensory impressions. To all intents and purposes the patient is drunk. Thus the alcoholic receives sensory impressions, but presents motor inco-ordination. He argues, and complains, and wakes the following morning with utter forgetfulness of the events of the recent past. He, too, has amnesia. Cases have been reported which have been delivered painlessly during alcoholic drunkenness, or else remember no pain. **Rush, years ago**, cites the case recorded by Church, Allwright that of Daneux, etc.

Nitrous oxid has been used in dentistry for many years when Paul Bert, in 1878, recommended it for longer anesthesia if given with oxygen. Klikowitch, of Petrograd, in 1880, first applied it to obstetrics. His series comprised 25 cases, one of which was treated in a private house. The gas was composed of 80 parts nitrous oxid and 20 parts of oxygen. It was started early, as a rule, when the cervix would admit one or two

fingers, and was continued intermittently throughout the labor. Three or four inhalations rendered the contractions painless, but did not cloud the consciousness. The results show that this treatment caused no diminution in the strength or frequency of the contractions. On the contrary, they were often stimulated. A case which was vomiting was controlled by it. The fetal and maternal pulses were not much altered. This remarkable contribution appears to have excited little comment, and has been completely forgotten.

Tittel's paper appeared three years later, in 1883, and that of Doederlein in 1886, but without discussion of the analgesia. The latter author is often quoted, but he largely contented himself in investigating anesthesia of surgical degree. Following these reports a few others studied the deeper stages of anesthesia, but the crudeness of the apparatus contributed to marked dangers and prevented the method from enjoying any popularity.

With the improvement in apparatus, the gas methods were revived. Webster early used it in obstetrics in this country, giving it in percentages of 95 or 97 to 5 or 3 for forceps, versions, repairs, etc., and later for Cesareans. He advocated its employment for operative delivery when ether was contraindicated by conditions of the kidneys, etc., as a substitute for chloroform. He quite recently tells me he also started to use it some years ago in several normal private cases in the latter part of the second stage.

In quite recent time the perfection of instruments and the wide adoption of gas and oxygen in dentistry has given us a new method which can safely be applied in normal obstetrics as a means of preventing pain. Analgesia has long been known with ether and chloroform, but their irritating features have prevented a clear study of the field. With nitrous oxid and oxygen a stage is readily found in obstetrics where consciousness is not much disturbed, save for loss of sensations of pain. The effect in reality is nearly that of a local anesthetic. This method is applicable for many gynecological operations when given with larger percentages of oxygen. In this field the proper stage is characterized by thickened speech, tingling of the hands as if asleep, some motor inco-ordination, sweating of the forehead, and dilatation of the pupil, but the patient

is awake and will answer questions. I amputated a cervix in this "twilight stage" at the Presbyterian Hospital, July, 1913, while the patient talked throughout the operation and complained of no pain, save the tugging of the sutures when they were being tied. I have also emptied a uterus for hyperemesis during the same month, while the patient was conscious to the extent of answering questions with "Yes" and "No," without pain. Quite recently there is reported from the Muncie hospital a case of hernia and an appendix operated on while the patient was able to respond to questions, but without pain, because of this method of analgesia, deeper degree being given only at the moment the peritoneum was cut through.

I have been using this method in obstetrics since July, 1913, and report thirty-seven cases where this analgesia has been maintained for more than one hour, besides many cases in which it was used a shorter time, where formerly we would have given ether. Thirty-four cases were carried for more than two hours; four more than four hours, and one case more than six hours. Twenty-six were primiparas and eleven multiparae. Forceps was necessary in three cases, when the gas was carried to surgical degree. They were primiparas of 39, 35 and of 25 years, respectively. There was no case of inertia, postpartum hemorrhage or shock, or fetal asphyxia.

Although I had adopted Webster's work with gas for operative delivery, any use in normal cases as a means of preventing pain was unknown to me, since until most recently I was unacquainted with the literature. I first saw with Dr. Hoag a case so treated July 12, 1913. The patient was the daughter of Mr. Clark, a maker of instruments for anesthesia, who had sought to employ at his own risk in his family the method of preventing pain which he had long demonstrated in dentistry. No one, I am sure, who was used to the deeper forms of gas anesthesia in labor, with its lividity, rigidity, jactitations and nausea, would think such results possible as are demonstrated in the new method. Instead of struggling and rigidity, there is quiet, and the patient, ever conscious, follows your spoken directions throughout the entire course of the labor, striving to help herself.

The gas is best given through a nasal inhaler, since the proper level of analgesia is thus more

easily maintained. It is started whenever the pains are troublesome or severe. Pure nitrous oxid is given at the beginning of the contraction, as determined by the hand. If a machine without a regulator is used, the gas bag should be but half distended. The patient must be cautioned not to lose consciousness, and to breathe deeply through the nose a certain number of times before starting to bear down. Five deep inhalations usually suffice to carry one painlessly through the most forceful contraction. She is encouraged to bear down and hold her breath, catching it in the middle of the pain. At this time I usually transfer the nose-piece to the mouth, since experience has shown me that the patient is apt to take too much and pass by the proper stage. Oxygen is now given with the gas. This is the time for oxygen, to clear the head and freshen the patient. If only two or three inhalations are taken preliminary to bearing down, several inhalations are necessary in the middle of a long pain.

This method must be clearly distinguished from the older way of giving gas. The key to success is preservation of consciousness while the pain is controlled. The success depends upon the co-operation of the patient. A light placed in ready view before them is a good guide to help them regulate the dose. When the light appears to waver they are too deep. The anesthetizer must tell the patient when to begin to inhale. Left to her own devices, she does not start until the contraction has become painful, when she ordinarily will breathe too much and go too far under. When the anesthetic is carried past the proper stage, a painful zone is encountered, in which she turns blue, gives evidence of pain when in the second stage, and rolls about, disturbing the sterile field, just as a scopolamine case. Nausea is most apt to follow.

It is quite possible to deliver painlessly while the patient is conscious. It is a remarkable sight to see a head distending a perineum without any evidence of pain. Yet gas in light doses acts as an undoubted stimulant to the contractions. In order to control too rapid advance, it may be advisable to proceed to deep anesthesia at the moment of birth.

Mid stages of anesthesia are apt to prove troublesome, as the patient stiffens and strains. The drug has no cumulative action, and does not

appear to be carried to the child in dosage sufficient to cause anesthesia. It is often a matter of remark that children delivered by Cæsareans under gas are not anesthetized as deeply as if ether or chloroform had been used. No case I have yet observed with this new method has presented a definite oligopnea. Respiration has been immediately established.

When this procedure is first attempted, partial failure may result because too much gas is given. There will be the same stimulus for the contractions, but with disordered consciousness and lividity. The pain is diminished, it is true, but the other way there is no pain. Quiet is opposed to restlessness.

In order to come into competition with scopalamine, the method must be one that can be safely carried on for hours. There is complete agreement that this is feasible with all of us who have made observations at the Presbyterian Hospital. The safety of gas in general is thus shown by Woodyatt. Dogs were sensitized to toxins by removal of their liver glycogen. No dog thus phloridizinated survived ten minutes of chloroform anesthesia. All treated with ether presented some tissue changes. Yet only trivial changes were found to follow two hours' anesthesia with nitrous oxid oven in this weakened condition. Woodyatt's experiments concerned surgical anesthesia. The method under consideration does not deal with deep anesthesia save only for a moment or two. Two hours' deep anesthesia is more than equivalent to ten times that of this type of analgesia. Moreover, hundreds of daily tests of dental analgesia are proving the safety of the process.

Theoretically, the method is correct. No irritating peripheral sensations reach the brain. There is no loss of consciousness. The action is nearly that of a local anesthesia, with a nerve block upon the sensory side to protect the brain. It can be started at any time. There is no danger to mother or child. The method is applicable to any case which will be allowed to enter the second stage. It can be used in hospital or home. The second stage is not prolonged. It is apt to be shortened. The method is **not one** to use when the doctor is late, but is on his way.

It is perfectly true that the work of carrying on analgesia is arduous and tiresome. Yet the method is readily learned. A few minutes' careful instruction, and any member of the family

may serve as helper under direction. A good nurse quickly picks it up.

The cost varies with the type of apparatus, care in details and size of tank containing the gases. With a modern instrument with a regulating apparatus, and a large tank, the cost is a little more than one cent per minute. Forty gallons of combined gas in the proportion of 2 to 7 is the average per hour of five hundred users of analgesia in dental work. This is slightly more than is necessary in obstetrical analgesia. With the ordinary apparatus and no regulating check, much gas is wasted, since much of the unused contents of the bag escape during the intervals between contractions. At least three times the gas necessary for our purpose is wasted, making the method in small tanks cost upwards of three dollars per hour. The latter figure is as cheap as I have been able to thus use it.

I believe this method is the most practical yet devised to accomplish painless labor with proper safeguards for mother and child. Unlike the Freiburg method, it is safe and not complicated. Its ease of administration and remarkable results speak volumes for its future popularity.

DISCUSSION.

Dr. J. Clarence Webster, some ten or eleven years ago, began a long series of cases working from pure nitrous oxid up to mixtures of nitrous oxid and oxygen, and while Paul Bert, of France, referred to the additional value of nitrous oxid when mixed with oxygen, the late Dr. Edmund Andrews, of Chicago, directed attention to the value of nitrous oxid and oxygen in the eighties. He (Dr. Webster) first employed this anesthetic in eclamptic and nephritic cases where operative measures were indicated; then later he extended its use to Cæsarean sections where, on account of the condition of the kidneys of the patients, he was afraid to give a general anesthetic.

The work of Dr. Lynch was of the highest value in that he had endeavored to standardize the administration, giving the slightest possible amount, which all obstetricians must aim at in the administration of any anesthetic. The only point that required now to be developed was economy of administration.

Another great advantage which would appeal to the medical profession everywhere was that its administration could be carried on by the practitioner in the home of the patient. While a large number of obstetric patients were attended in hospitals, by far the greater majority of them were delivered in their own homes, and it would be a consolation to every practitioner to know, after some study how to give this drug, he could

help patients as far as they required to be helped.

He did not think the members of the profession should get the idea that labor was an entirely pathologic process, like a surgical operation, requiring the administration of some anesthetic or sedative drug from beginning to end.

The advantages of nitrous oxid gas analgesia in obstetrics were that the apparatus was simple, easily transported, and might be used by any practitioner. Deep anesthesia was not necessary. There were no ill effects to mother or child. The strength of uterine contractions was not diminished, no matter how long the administration of the nitrous oxid gas was continued. The administration was under control all the time, and could be stopped at any moment. This was a very decided advantage which was not possessed by any method which necessitated placing a patient under the influence of drugs administered internally.

Dr. N. Sproat Heaney stated there was not the least difficulty with the child. It was not necessary to employ artificial respiration or to explain to the parents afterward that any trouble manifested on part of the child in nursing was due to some difficulty at birth. The method was so simple that the practitioner could entrust the use of the apparatus to an attendant while he gave his attention to the case.

As to the expense, he had found that patients were always willing to provide for any expense if they were given the assurance of freedom from pain by this method. Personally, he had no special apparatus for the mixture of gas and oxygen, consequently he simply used nitrous oxid gas, and the results he had obtained were just as good as those he had secured when he gave both gas and oxygen to patients.

Dr. Isabella C. Herb pointed out that scopolamin was not a respiratory stimulant in any dose, and when given in large doses it was actively depressing. Morphin, when given in any sized dose to produce systemic effects, was a respiratory depressant. Scopolamin raised blood pressure, but did not affect the pulse rate, while morphin raised blood pressure and also increased the pulse rate. Morphin depressed the brain and produced sleep. Scopolamin also depressed the brain and usually produced sleep, but might produce delirium and hallucinations and a great amount of restlessness. Both morphin and scopolamin depressed kidney function, consequently their use would be especially hazardous in a woman whose kidneys were undergoing a pathologic process or change which would interfere or decrease their functioning capacity. Under such circumstance uremic coma might be precipitated if the kidney function was depressed for several hours.

Too much emphasis was placed on the cost of nitrous oxid gas. Safety to the mother and child should be the all-important question and should dominate all others. It required intelligence to give a hypodermic injection, but it required no

special training, no special knowledge, no special expertness to administer gas up to the point of analgesia.

Dr. Carl H. Davis stated that his experience with nitrous oxid gas in labor dated back to 1909, when it was his good fortune to give the first nitrous oxid gas analgesia for a Cesarean section done at the Presbyterian Hospital. During that same period they gave nitrous oxid gas for versions, vaginal sections, and for normal deliveries. The longest time which any one patient received nitrous oxid was over two hours, and that was prior to a forceps delivery in a primipara. The method at that time was to give a few whiffs of gas during the height of the pain, merely to lessen suffering, and then as delivery was approached, with the head bulging the perineum, the woman was more completely anesthetized. Since the introduction of the nasal inhaler and of the newer types of gas machines, the cost of administering nitrous oxid had been materially decreased. Instead of costing \$5.00 an hour, as it did a few years ago, it could now be administered for a small part of that.

One of the chief difficulties of the use of nitrous oxid by the general practitioner was that of having his hands scrubbed and having to regulate the gas machine. It occurred to him that a machine could be devised which would permit the practitioner to regulate the gas and at the same time care for the patient. Such a machine had been constructed and was exhibited by Dr. Lynch.

From his experience with nitrous oxid gas, he felt that it could be used by the general practitioner as well as the specialist and believed it would have a wide range of usefulness in the future.

Dr. Henry F. Lewis said that for a great many years in obstetric work the chief slogan was safety first, which was very important. If a patient could be made comfortable and free from pain without too great a sacrifice of safety, it should be done, but some practitioners might sacrifice safety in order to bring about comfort. From the standpoint of the male obstetrician who was conducting a case of labor safety was the main thing.

Inasmuch as Dr. Lynch had referred to the method of nitrous oxid gas being used principally in the second stage and toward the end of labor, he would like to ask him a question. In some cases of primiparas the first stage was quite long, where the obstetrician would be justified in doing something to prevent or to relieve pain if there was no sacrifice of the element of safety. For instance, take an occipito-posterior position which rotated slowly, it was extremely painful for a long time. He would like to ask Dr. Lynch whether he would advise the use of nitrous oxid gas in the beginning of such cases, with a pretty long first stage?

Dr. Bertha Van Hoosen reported briefly the last fifty cases they had had at the Mary Thompson Hospital. They had had there approximately 200 cases, and the last 50 they had had since the fourth

of January in the service of Dr. Edith McCann. There was only one case that was not given "twilight sleep," and that woman entered with eclampsia, having had six convulsions in the 12 hours preceding her entrance. She was not given scopolamin-morphin, but delivered at once by operation. Of these 50 cases there were 24 primiparas, and 26 multiparas. There was one high forceps case, and the baby was asphyxiated. It was the only baby that had to be resuscitated that did not breathe as soon as it was born. In the primiparas the average labor was twelve and one-half hours; in the multiparas the average labor was six hours. No children were born dead with the exception of a five-months fetus which probably died before labor began. At least no heart beat was heard, and the child was macerated beyond recognition. Only seven of these patients had lost the normal amount of blood during the first stage. All of the women were able to nurse their children. Some of them had a large amount of milk. All of these were given a fixed dose, namely, 1/100 grain of scopolamin and 1/8 grain of morphin, as soon as it was known they were in labor. These doses were repeated at the end of one-half hour or one hour, according to the severity of the pain, and at the end of the next half hour or hour. They were kept under the anesthetic by repeating the 1/100 grain of scopolamin every two hours until labor was completed. Thirty of these patients took from 2 to 5 doses; four of them had as high as 9, 12 and 15 doses; two of them had 15 doses. They had not had any blue babies. They use a fixed dose, and not the Freiburg dosage. They felt the Freiburg dosage was not satisfactory and they would not get perfect results by it. There was perfect analgesia in every one of the fifty cases.

Dr. Van Hoosen had yet to see a woman who objected seriously to the pain in childbirth, but what women objected to was the tears they received, and the lack of ability to nurse their children. What they objected to was fatigue by being in labor for **two** and sometimes three days.

The reason she gave scopolamin-morphin was because of their anoci properties, and on account of these anoci properties she felt there were fewer lacerations. In the series of 50 cases they had only 10 per cent laceration. Besides, there was a better chance for good lactation.

Dr. Joseph L. Baer stated that at a previous meeting of the society it was his privilege to report a series of 39 obstetric cases which were conducted at the Michael Reese Hospital since the first of January. This series had since grown to 70 under scopolamin-morphin anesthesia and had been terminated. The method was conducted under the strictest precautions for observation and control that could be devised by Drs. Frankenthal and Cary. Two nurses were employed for the purpose who alternated, spending their whole time in the delivery room. Two internes were assigned to the obstetric service, devoting their whole time to

the study of these cases, and the speaker spent most of his time with them. He thought the matter might be summed up in a phrase coined by Dr. Cary as an "obstetrical jag." Every patient on whom they started this method was a matter for concern until she had been delivered. They had blue babies. They had almost every complication and disaster spoken of from this particular method of anesthesia. Speaking for himself (and without consultation he thought he could speak for Dr. Frankenthal and Dr. Cary, also), anything that would take the place of scopolamin and morphin, if they had obtained a foothold, would be an improvement.

As to the use of nitrous oxid and oxygen, he held the position of anesthetist at the Michael Reese Hospital for a number of years before he became associated with the obstetric staff, and it was his privilege to give nitrous oxid and oxygen anesthetics in most of the private surgical cases that were operated on by Dr. Frankenthal and other members of the staff, and from his experience nitrous oxid and oxygen were safe in the hands of those who did not have much training. This of itself was worth considering. He believed that with the consent of his chiefs, they would in the near future try to duplicate the excellent results cited by Dr. Lynch.

Dr. Charles B. Reed said that his own experience had been devoted recently to the study of the scopolamin-morphin method at Wesley Hospital. He had had approximately seventy-odd cases. They had had the usual run of delirium, etc., which Dr. Baer spoke of, but this occurred in Jewish women, and he believed that the highly sensitive nervous system of that race was not adapted to the use of scopolamin-morphin. They had had no blue babies. They had lost no mothers, and no babies. They had had no infections. They had found the method fairly satisfactory. They used it in the second stage. They had had no labors practically over eight hours, and were abundantly satisfied to continue the method.

Dr. Junius C. Hoag thought the expression used by Dr. Cary of "obstetric jag" was very apt. It might be called that or an obstetric debauch.

He started last summer for Freiburg, got as far as England, and was kept out of Germany by the war, but since he had become familiar with the scopolamin-morphin method he did not regret being unable to reach Freiburg. After some of the hysterical manifestations we had had with regard to the scopolamin-morphin method, it was refreshing and encouraging and hopeful to listen to such reports as Dr. Lynch had brought forward. Personally, he had used the method in fairly normal but protracted cases of labor, and also in cases of Cesarean section.

He had practiced medicine long enough, so that he had gone through a good many furores or manifestations of hysteria over different methods, and

he prognosticated that the scopolamin-morphin method would not be of long duration.

Dr. William Rittenhouse stated that for the last eight years he had been using morphin and scopolamin more or less whenever they seemed to be indicated by an undue amount of suffering on the part of his patient. He gave it in the first stage more frequently than he did later because his experience had been that patients suffered most acutely in the first stage. The suffering of the second stage was more commonly controlled better by whatever anesthetic was selected for delivery. On an average his dosage had been to administer $\frac{1}{8}$ grain of morphin and $\frac{1}{200}$ of scopolamin, and later repeat these if he found it was necessary. He was very well satisfied with the results obtained and so were his patients.

Dr. Lynch, in closing, said he was delighted to see that the scopolamin-morphin method of anesthesia was being properly investigated. He welcomed such reports as those that had been given, as presently the truth would be known. Such a report as Dr. Baer had given was worth more than thousands of cases to the contrary, because it emanated from a well organized clinic where scopolamin-morphin anesthesia had been carried on under proper auspices. Scopolamin-morphin anesthesia had failed with him, or he would not be advocating nitrous oxid gas and oxygen analgesia.

In such a case as Dr. Lewis had mentioned, he would begin administering the gas as soon as the patient complained of pain, and when he got tired, he would have the nurse continue giving the gas for some time, and then she would be relieved. Six or seven hours was a long time for anyone to continue giving the gas. He then exhibited several types of gas and gas and oxygen machines, which are portable and especially adapted for this work.

IS TWILIGHT SLEEP TO BE "FOR ME." A BLESSING—OR A CURSE?*

A. L. MANN, M. D.

ELGIN, ILL.

City Medical Officer, Chief of Staff, Larkin Children's Home,
Late Consulting Internist, Elgin State Hospital, Elgin, Ill.

The mining prospector of the mountains, grim, gaunt and grizzled, sees in every piece of loose rock, or "float," potential wealth beyond the dreams of avarice, and to the end that to him may fall the glory of announcing to the ever-waiting world a fabulous "strike," he investigates carefully every promising specimen with which he may come in contact, first, by surface inspection from every angle for evidence of a visible trace of "color"; second, failing to find

what he seeks in this manner, he pulverizes his specimen and "pans" it, watching with anxious and greedy eyes for the little yellow specks in the concentrates in his pan which will announce his accession to wealth; third, no "color" appearing in the pan, he seeks the assayer and awaits the appearance of the little "cupel button" resulting from the final trial by fire of a fragment of his specimen, which will determine the measure of his hopes—or fears.

If Mr. Prospector is an honest man seeking genuine results, with no desire to delude either himself or others, he has so far as possible "averaged" the specimen submitted to the assayer in order that the assay report may be a true criterion of the measure of good fortune which may be within his grasp; but if, per contra, he is a scoundrel, and fully aware of the immeasurable credulity and gullibility of the human family, as most scoundrels are, he selects a particularly rich fragment of his specimen—or even steals a rich specimen from another's mine as I have known them to do—and uses the assayer's report on this specimen as a lure for the "get-rich-quick" suckers whose haunts he finds without the least trouble. Thus does the exploitation of a mine become a blessing or a curse—and which it is to be "for me" (a prospective investor), depends entirely upon how thoroughly I have analyzed the proposition submitted to me, and how the results of such analysis conform to the allegations of the promoter and my wishes in connection therewith.

Now, within the memory of most of us, a group of old-time prospectors in the vast field of medicine, by dint of long years of weary search and research have discovered heretofore unknown values of immense import to all humanity, and after years spent in investigating the true character of their discoveries for the purpose of proving beyond all doubt that they actually had "tidings of great moment," they gave their discoveries to the world for the benefit of all mankind, as witness Pasteur's discovery of the principles of bacterial activity, Koch's discovery of the tubercle bacillus, Laveran's discovery of the malarial parasite, Neisser's discovery of the specific organism bearing his name—and a host of others.

All of these discoveries are of the highest

*Read before the joint meeting of the Medical Societies of Counties McHenry, Boone, Kane, Winnebago and Stephenson, of Northern Illinois, held at Rockford, Ill., Feb. 9, 1915.

importance to us today, and they have been handed to us by their discoverers for the good of humanity and the glory of the medical profession, without money and without price.

But following closely upon the heels of these sturdy old ethical pioneers came a new generation of shrewd workers who saw the potential wealth in the virgin field just opened by their predecessors and who immediately proceeded to profit commercially thereby exhausting first their home territory and then turning for a more bountiful harvest to that new and fertile territory—our own great and glorious United States of America—filled with easy marks who bow down and worship at the throne of anything “made-in-Germany”—or even merely labeled such although perhaps made in South Elgin, Ill., U. S. A.

Von Behring, with his meritorious diphtheria antitoxin set the pace in a fairly legitimate manner; then came the multitude of German commercial chemical concerns; then Ehrlich with his salvarsan at a most exorbitant price; then the notorious and brazen Friedmann with his tubercle-bacillus-soup fraud; and lastly, and perhaps greatest in its unethical press methods of exploitation—the narcophin, or “Twilight Sleep” scheme for relieving the despised American of his sordid—and, perhaps, tainted wealth, promulgated by Drs. Kroenig and Gauss, of Freiburg, Germany, which is the proposition I herewith present under the interrogatory caption, “Is Twilight Sleep to Be for Me a Blessing—or a Curse?”, asking that you give the whole subject of the narcophin treatment of child-birth the same crucial test of investigation, from the mere cursory examination of the crude specimen to the cupel button of fire assay to which the mining prospector subjects his specimens, before we accept the situation as possessing that degree of value which will warrant us in giving it the stamp of our approval.

Please note that I specify narcophin treatment; how many of you know what narcophin is?

My incentive in writing this paper was furnished by reading a well written article appearing in the January, 1915, number of the *Woman's Home Companion*, entitled “Is the Twilight Sleep Safe—for Me?” which was apparently an editorial inserted as “reading matter,” no name appearing in connection therewith, as the author,

and the article being prefaced by the following statement:

EDITOR'S NOTE.—Repeated over and over again in the letter addressed to the Expectant Mothers' Circle we have found this almost yearning inquiry: “Tell me, please, the truth about the Twilight Sleep; is it practical; is it available; is it safe—for me?” Such a question, so insistently presented, demands more than a mere editorial expression of opinion. We have chosen to answer it in this authoritative article, which has been read and approved by one of New York's well known obstetrical specialists who has used the scopolamin-narcophin treatment for over six years, and was chosen to pass upon this article not merely because of his marked success in its application, but also because he has maintained a conservative reserve upon the treatment until the results justified a definite statement.

The initial statement in this article I quote verbatim:

The aim of this paper is to present the facts now authoritatively and scientifically known and acknowledged for and against the scopolamin or “Twilight Sleep” treatment of child-birth.

Note the use of the word “treatment” instead of “anesthesia.”

After allowing for such extremes of adverse influences as a “pernicious spirit of skepticism” on the one hand and a “maudlin enthusiasm” on the other, and deprecating the sensational tendencies of yellow journalism to present the remedy as a panacea for the pains and accidents of child-birth in all cases (which is precisely what is taking place at present), the writer thereof proceeds to analyze the situation in a fairly logical manner, but to my mind, deducing very illogical results therefrom.

In one essential feature, however, he nearly scores a hit when he says, “so clever and skillful have been the advertising methods of certain foreign institutions, that the explanation of ‘Twilight Sleep’ seems, in our lay press, and indeed often in our medical press, to exploit the German Frauenkliniks, rather than the definite process of the scopolamin treatment.” The exploitation is not of the Frauenkliniks, but of narcophin, a proprietary preparation made in Germany, alleged to be morphin and atrophin meconate, and is undoubtedly the key to the entire situation.

The conditions precedent, which according to the author of said article, must be complied with before the use of “Twilight Sleep” will be justified (and which, if ignored by the physician,

might furnish grounds for an action for malpractice, should disastrous results follow such injudicious application of the treatment, for "not every case responds to the treatment, nor should the treatment be tried in every case"), are stated as follows:

1. *Careful selection of cases.* "The very young, the comparatively old, the debilitated and those suffering from serious disease like kidney disease," are excluded. "Dr. Gauss reports that at Freiburg only 70 per cent. of applicants are accepted and only 80 per cent. of these respond satisfactorily, giving a net result of (alleged) successes of 56 per cent. of all applicants at the hospital; of those obliged to be attended in their homes, nothing is said. Furthermore, "in the hospitals in this country now using the method only 25 per cent. of all cases are considered eligible for the application of the treatment." Is it possible that financial conditions make for or against eligibility? And what becomes of the ineligible 75 per cent? I suppose they must be content with the old-fashioned time-tried and efficient chloroform or ether anaesthesia.

2. *It must be administered by an "expert" in its use, who ipso facto must also be a skilled obstetrician.* "There will be charlatans who will take every possible advantage of this new path to fortune, and there will be the type of physician who, when the patient insists on having 'Twilight Sleep,' will, rather than lose the patient, administer it with insufficient knowledge of the process." An "expert" is one "who must have a precise knowledge of the nature and action of the drugs scopolamin and narcophin (a proprietary compound, remember), and a nice observation of the symptoms and effects manifested by the individual prospective mother." They will be few and far between.

3. *Elaborate institutional facilities.* The "Twilight Sleep" method requires not only accurate knowledge of the technique but also expert watchfulness and constant attendance on the part of the physician. These demands are practically impossible of fulfillment in the busy life of the general practitioner, hence the necessity for the obstetrical specialist with his corps of institutional attendants—two assistant physicians and two or more nurses—in an elaborately fitted obstetrical pavilion.

4. Money—more money—and then some, for it is openly stated that this method is a "new path to fortune," and I have heard of physicians taking a course of instruction in the method, consisting of attendance on some obstetrical clinic at a metropolitan hospital of from a day to a week or two, after which it is rumored that they are now prepared to administer the treatment at fifty dollars and upward, per. "There is, of course, no reason why a physician should not learn the method; but he should not practice it until he has made it an art; if the operator is not thoroughly conversant and familiar with his subject, dead babies and dead mothers will too often be the result of his ignorance."

The parties immediately concerned in this lay press discussion of "Twilight Sleep" are "me" and my physician. Who is "me"? "Me" in the cause now in hearing is every woman, rich and poor, in cities, villages, on the vast prairies, or in the mountains and valleys throughout the length and breadth of this land who is about to become or may be eligible to become a mother, every one of whom is entitled to such mitigation of the agony of her travail as science can advise and humanity safely administer.

How many of "me" might there possibly be in the continental United States alone? The population of the continental U. S. on July 1, 1914, was in round figures, 99,000,000; this represents approximately 20,000,000 families, the maternal head of each of which is a potential mother, or is already the mother of one or more daughters eligible to motherhood, hence it may safely be assumed that there are 20,000,000 of "me" who are or will be influenced by the indefensible and pernicious exploitation of "Twilight Sleep" in the various lay publications devoted to woman and her interests (?), a copy of some one of which reaches nearly every woman in the land, particularly those of the rural and more remote districts—and the more remote the woman may be from metropolitan centers, the more thoroughly is every word in these publications read and unfortunately, in many instances accepted as scientific truth, inasmuch as to many of them the editor of their favorite magazine is omniscience personified, in comparison to whom the average physician of their locality upon whom

they have to depend for aid in time of physical distress is a deplorable nonentity.

There are 28 cities in the United States of such size as to be classed as metropolitan centers, from New York city on the Atlantic coast, with its population of nearly 5,000,000, to Portland, Oregon, on the Pacific coast, with a population of a little over 200,000. Collectively these cities claim a total population in round figures of 17,000,000, or about 17 per cent. of the entire population of the country, therefore, it may be considered that 17 per cent. of the mothers in expectancy or potentially probable will have access to the advantages provided by metropolitan facilities which will be denied to the remaining 83 per cent., or nearly five times as many of their less fortunate sisters of the rural and remote districts. And even at that I think it will be safe to assume that not to exceed one-third of the metropolitan 17 per cent. will be so situated financially as to be able to take advantage of the facilities offered by the institutions within their reach; in other words, only about 5 per cent. of 20,000,000 of "me," or one in every twenty, under the restrictions governing the use of "Twilight Sleep" will come within the range of its alleged beneficence, and of this 5 per cent. only one-fourth are considered by the "experts" in the American hospitals using the method as appropriate cases for the exhibition of the remedy. Thus we find this vaunted "tidings of great joy revealing itself to womankind" to be applicable to only about one in every 100 of "me"; as we stated above the remaining ninety and nine will have to be satisfied with the *real* sleep or anaesthesia accruing from the use of chloroform or ether, both of which have been tried and proven safe and reliable in child-birth under all sorts of surrounding conditions, from the sod shack or log hut of the pioneer to the best appointed obstetrical pavilion of any metropolis—and if it is good enough for the ninety and nine it is plenty good enough for the remaining one.

And what of the other party to this discussion—the physician? There are of him all told in the continental United States a little over 142,000, or an average of one physician to about 140 families. In the 28 metropolitan centers above referred to there are in round figures, according to the latest edition of the American

Medical Directory, 37,000 physicians, or approximately 25 per cent. of the entire number in the continental United States, and this 25 per cent. by reason of being within comparatively easy reach of metropolitan clinical facilities might be expected to take advantage of the opportunity to post themselves on the technique of "Twilight Sleep" methods. The facts are, however, that only a small percentage will do so—perhaps not to exceed 20 per cent., the rest will be precisely on a par with their confreres of the rural and remote districts—they will make a bluff at administering the remedy when demanded by a patient, trusting to luck for favorable results. Thus it will be seen that about 95 per cent. of the physicians will *not* be in a position to apply the treatment in accordance with the demands of the approved Freiburg technique.

We now have to consider a new party to the issue, and the one really vitally interested—the baby. He has just arrived, with the aid of "Twilight Sleep" administered to his mother, blue of countenance and asleep at his post. His little heart is pumping away so we know he is alive, but he doesn't breathe. We use every method of resuscitation at our command—even keep a pulmotor going for an hour. Perhaps we are rewarded with a little gasp and are encouraged to keep up our efforts until respiration appears to be established, but the baby does not wake up—that lusty little yell which means so much to all of us fails to materialize; the little 7-pound victim is thoroughly narcotized, and finally after 6 or 8 hours of vain effort he gives up the struggle; was the "Twilight Sleep" a blessing or a curse? We will have to let the mother answer—the poor little kid is dead. (An actual experience. A. L. M.)

It is only within the past ten years that I have heard of the use of morphin and hyoscin as a palliative for the pangs of parturition; I must have been inexcusably behind the times, as according to Mrs. Francis Xavier Carmody of New York city, in relating her experience as a patient in the Frauenklinik at Freiburg, in the *Ladies World* for February, 1915 (claiming a circulation of over 1,000,000 copies monthly), "Dr. Kroenig and Gauss did not discover "Twilight Sleep" because it is sixty-seven (sic) years old, but they perfected its application and gave it

to the world" (inventing at the same time that wonderful preparation which they have named narcophin, which they are not *giving* to the world—no indeed!—but they will *sell* it at a good fat price, and the physician must use it, else forsooth his technique will be imperfect and it will be no wonder that he should get bad results! Can you see the point?)

Foster's Medical Dictionary issued in 1894 does not contain the word scopolamin; Gould's Medical Dictionary of 1900 does not mention it; Edgar, in his second revised edition of the "Practice of Obstetrics," issued in 1904, had nothing to say about it nor of the "Twilight Sleep" method of treatment of child-birth; and according to the author of "Is the Twilight Sleep Safe—for Me?" it was not until 1902 that Von Steinbüchel was the first to suggest that it (presumably meaning morphin and hyoscin or scopolamin) would be of value in controlling the pains of child-birth, hence it is not to be wondered at that an obscure practitioner like myself should have overlooked it for nearly 25 years.

About the year 1906 I began using hypodermic injections of morphin and hyoscin as an adjunct to chloroform or ether anaesthesia in surgical operations on adult patients only, its use being distinctly contraindicated in children, and I continue its use under such conditions to the present time. I have had no bad results from its use under such conditions during this entire period, but I seem to be alone in my use of it, as I am informed that none of my confreres at either of the two hospitals in our city are using it at all. Why not? It is as useful and safe here as it is useless and dangerous in parturition, and yet they will blindly follow the suggestion of an unethical foreigner who has an axe of his own to grind and who evidently knows how easily the American can be duped, rather than be guided by the results of their own investigations and observations.

In speaking of "an unethical foreigner," I refer directly to Dr. Koenig of Freiburg, basing my statement on the manner in which he introduced the proprietary preparation which he calls narcophin to the medical profession of this country, by taking advantage of the courtesy of an audience granted him by the Clinical Congress of Surgeons of North America in November,

1913, and also by the Chicago Gynecological Society, November 15, 1913, on both of which occasions he read a paper, the caption of which was "The Difference Between the Older and Newer Treatment by X-Ray and Radium in Gynecological Diseases," but which after a short dissertation on the subject proper drifted into an exploitation of narcophin under the disguise of a dissertation on "Twilight Sleep," a full report of which appears in the May, 1914 number of *Surgery, Gynecology and Obstetrics*, p. 529, which shows 101 linotype lines required to dispose of the title of the paper, while 201 lines were devoted to the subject of narcophin.

This bait being apparently swallowed whole by the medical profession, Kroenig then makes his next bid to the laity by appearing in the lay press, as witness the article appearing in *McClure's* for June, 1914, published with the full knowledge and consent of both Kroenig and Gauss. (See *Journal A. M. A.*, June 13, 1914, p. 1912.) I respectfully submit that similar action on the part of any one of us would be pretty apt to result in our being "sent to Coventry" for conduct in violation of the principles of ethics of the American Medical Association.

Since then the entire lay press has apparently been clamoring for its share of Kroenig's press agency fund, as some reference to "Twilight Sleep" as a "glory of light revealing itself to womankind" is continually confronting us—and that in spite of the fact that the reputable medical press is discountenancing the entire proposition.

Now to summarize our analysis: 1. The treatment is not practical and will not be available for 99 per cent. of the potential motherhood of the country; 2. Ninety-five per cent of the medical profession will be denied the privilege of using it in conformity with the essential (Freiburg) requirements; 3. It is admittedly dangerous to the child and in lesser degree to the mother also; 4. The entire propaganda appears as a vicious exploitation of a foreign proprietary preparation; and finally, will undoubtedly prove to be "for me" a curse instead of a blessing, should its indiscriminate use be persisted in.

Since the above was written, the following item of news appears in the *Journal A. M. A.* for February 13, 1915, p. 598:

SAFEGUARDING AGAINST SCOPOLAMIN CASUALTIES.—The authorities of Michael Reese Hospital (Chicago) announce, as the result of their experience after a series of about forty obstetric cases treated by the scopolamin-morphin anesthesia, the so-called "Twilight Sleep," that they will NOT use this method in labor except with the express guarantee of the patient that the hospital shall be free from all liability as regards ill results to the mother or the child.

WHAT'S THE ANSWER?

THE DERMATOSES OF PREGNANCY.*

E. A. FISCHKIN, M. D.,

Professor and Head of the Department of Dermatology and Syphilology, Chicago College of Medicine and Surgery.

CHICAGO, ILL.

The significance of pregnancy as an etiological factor in the formation of skin diseases is as yet little understood and only hypothetically established. The title "Dermatoses and Pregnancy" would have come nearer to a true characterization of the relationship of the two conditions than "Dermatoses of Pregnancy," for in no single skin disease met with in pregnancy is the causative factor definitely established; the chain of symptoms which we see in even the most typical representatives of these dermatoses, impetigo herpeticiformis and herpes gestationis, have been observed to occur also in non-pregnant women, yea, even in men.

The frequency, however, with which these affections have been observed to occur in the pregnant state, forced the assumption that pregnancy must here play the role of a determining cause. These dermatoses were compared with the dermatoses occurring in different other periods of the life of women—puberty, menstruation and climacterium, and considerations of a general nature led to the belief that there must be an interdependence of the skin function with the sexual sphere of women, and that a change in the latter leads to disturbance in the natural condition of the skin. What the changes really are, and how they exert their influence on the skin is as yet not definitely known, but the consideration that the symptoms by which these dermatoses are expressed are analogous to the symptoms of drug exanthemata, that is, to an intoxication of the organism by known poisonous substances, circulating in the blood, led to the assumption that the dermatoses, occurring in the period of sexual

changes, must also be produced by some poisonous substances—toxins—circulating in the blood and producing irritation through the vascular system. These dermatoses were, therefore, taken to be a symptom of autointoxication and their manifestation a form of toxemia.

The ovaries were in a general way accused of being the source of all the trouble. Since it became known that the function of the ovaries is not only the production and expulsion of ova, but also of secretion, the changes in the ovarian secretion came to be regarded as the direct or indirect cause of toxemias in the different periods of the woman's life. It was found that there is an interdependence between the ovaries and the other glandular organs which have an "inner secretion," the thyroidea and the parathyroidea, the hypophysis and the adrenals, that there is a complementary and vicarious activity in these various glands, that a diminution in size and in the secretion of the ovaries is associated with a hyperplasia and hypersecretion of the others. It was argued that all these glands belong to a system, whose function it is to paralyze the effect of toxic products of metabolism, by increasing or decreasing the blood pressure, or by increasing or decreasing the chemical constituents of the blood (nitrogen). The theory was advanced that menstruation, for instance, is a consequence of ovarian secretion, that its physiologic object is the removal of toxic substances contained in the ovarian secretion, and that a disturbance in menstruation (amenorrhoea) or a complete cessation of menstruation (climacterium and pregnancy) will condition retention of toxins, either of the ovarian secretion or of subsequent increased vicarious secretions of the other glands and cause a toxemia. It is a changed metabolism which produces morbid changes in the pregnant woman.

A vast amount of work was done in the last ten years in this direction by modern obstetrics. "Toxemia gravidarum" became an important chapter in the text-books and journals of obstetrics. The two most visible manifestations of this toxemia, eclampsia and hyperemesis, were made the object of innumerable investigations and many theories were advanced as to the nature of the toxemia and its source. Briefly summarized, they are as follows:

*Read at the meeting of the Illinois State Medical Society, May 21, 1914.

1. The origin of the toxins is in the maternal organism;

a. in the ovaries and the other glandular organs with inner secretions (thyroid, hypophysis, adrenals) as mentioned above;

b. in the mammary glands (Hugo Sellheim, *Centralbl. f. gyn.*, 1910, No. 50).

As a proof of this theory is brought out the fact that eclampsia occurs late in pregnancy, when the breasts commence to functionate or after parturition, when they increase their function. Several antagonistic bodies may be produced in the mammary glands and eclampsia may be caused by the suppression of some of these, so allowing the others to act unchecked; for this reason breast glands extract were advised to be tried in eclampsia. He considers enucleation of all the breast tissue in severe cases more efficient than rapid delivery or kidney decapsulation.

2. The origin of the toxemia lies in the fetus and its metabolism. Vanderhoeven argues that the accumulation of fetal waste from the growing child determines the actual occurrence of toxemia and eclampsia.

3. Most authors, however, find the placenta as the source of toxemia. Since Schmorl has shown that placental cell emboli-chorionic villi were found in the lungs and other organs of the mother, the theory was advanced that chorionic villi which break loose into the maternal blood stream usually cause no harm, but if the antiferment formation of the mother's blood is not of corresponding amount, then toxic effects follow.

4. The presence of foreign albumin (migration of chorionic elements) in the mother's blood gives rise to anaphylaxis, of which eclampsia is a symptom-complex. Fellender in *Zeitsch f. Geb. u. Gyn.* Bd. LVIII. Heft. I.) He believes that the chorionic elements in the blood may undergo cytolysis and set free an endotoxin, which may be the supersensitizing factor.

5. The theory of perverted nutrition. Development of new substances: peptones, albumins and imperfect excrementitious product. Ludwig, Saft, Massen and many other observers point to the fact that such poisons, some of unknown nature, are constantly present in the urine in the non-pregnant as well as the pregnant, that they increase and decrease in proportion as metabolism is normally performed, and as metabolism fails the blood serum becomes highly toxic and there is an accumulation of poisons in the glandular organs. These substances, remaining undialyzed, produce various forms of intoxication.

These theories have all been worked out and advanced by obstetricians in investigation of toxemia gravidarum or rather of eclampsia. The dermatologists have accepted these theories as a convenient interpretation of the symptoms of many dermatoses in pregnancy, the nature of which is in reality still obscure.

It will be seen from the above considerations that, whatever the toxemia of pregnancy may be, it is capable of affecting the vascular system and produce a vast amount of skin changes. In fact all the common dermatoses due to vasomotor and other vascular disturbances, like urticaria,



Case 1. Impetigo Herpetiformis.

pruritus, erythema, herpes, etc., are frequently observed in pregnant women.

The following cases will illustrate a few of the more rare dermatoses in pregnant women, which came under my observation.

1. IMPETIGO HERPETIFORMIS.

In summer, 1905, I was asked by Dr. Melchior Whise to see this woman. She was 32 years old, in her third pregnancy. The previous two pregnancies were normal, terminating in the birth of healthy children. In the beginning of the last pregnancy she got a pustular eruption of the face, especially around the lips, which soon spread to the trunk and extremities. The pustules appeared partly, as on the face and breasts, in groups, but mostly disseminated all over the body. They usually came out in crops, each new crop ap-

pearing before the old ones had time to dry and crust over. The eruption was associated with considerable elevation of temperature and chilliness, loss of appetite, occasional vomiting, and extreme exhaustion. The pregnancy terminated in spontaneous abortion in the fourth month, but the pustular eruption did not abate. The mucous membrane of the mouth became involved, so that taking of food became difficult. I saw her at this stage and you see on the photograph an almost universal eruption and a severe state of asthenia. Instituted treatment was of no avail, and as the nursing became impossible at her house the doctor took her to St. Elizabeth's Hospital, where she died after four weeks.

This disease is extremely rare. Its etiology and pathology are obscure. Some claim to have found micro-organisms in the pustules, but the majority of authors regard the sterility of the pustules as pathognomic for the disease.

2. HERPES GESTATIONIS.

The woman, 36 years of age, was a V-gravida. Previous labors normal. When in the third month of



Case 2. Herpes Gestationis.

her last pregnancy she was frightened by a fire in her house and in two succeeding nights by thunderstorms; soon after vesiculation appeared in the pubic and inguinal regions, which became unbearable because of burning sensation and itching; the eruption soon spread over larger parts of body. She was treated for some time at the Cook County Hospital and at her eighth month of pregnancy was admitted to the Michael Reese Hospital, where I first saw her. The skin lesions involved large parts of the body to a greater or less extent, but more prominent about the genitals, groins, abdomen, axillae and beneath the

breasts. Covering the entire external genitalia and extending into each groin and over the lower abdomen extensive patches, distinctly raised, purple in color, in parts condylomatous, exfoliating. In the vicinity of the main patches smaller raised, circinar areas, covered with vesicles and vesico-pustules, on erythematous base. On abdomen from pubes to above umbilicus areas covered with yellowish-brownish crusts; buttocks, under breasts and axillae covered with similar lesions. A cluster of vesicles on lower lip and a few small patches on hard palate.

The diagnosis, by different men who have seen her, varied between herpes gestationis, pemphigus vegetans, dermatitis vegetans and impetigo herpetiformis.

The eruption practically cleared up in 4-5 days after delivery. Eight weeks later, relapse of vesiculation in inguinal region, which healed under dry powder; five months later another relapse, of somewhat severer form, which again subsided under treatment. One month ago I saw her again with distinct pemphigus eruptions in pubic and inguinal regions, approaching the type of pemphigus vegetans.

The diagnosis "Herpes gestationis" was justified at the time of her first observation: the herpetetic grouping, the multiformity of lesions, the comparatively mild course of the disease excluded pemphigus and impetigo herpetiformis. But herpes gestationis in itself is a vague dermatologic entity and many cases published under its heading were, like this case, in reality cases of pemphigus or dermatitis herpetiformis, which appeared under indefinite symptoms at the time of pregnancy.

3. SYPHILIS HEMORRHAGICA.

The woman, 34 years of age, was admitted during my service to the Cook County Hospital. A history was elucidated of syphilitic infection about the time of conception, and of being in the fourth month of pregnancy. She showed isolated papules, general adenopathy, mucous patches and a quite severe angina of the tonsils. Three weeks previous to her entering the hospital, petechiae appeared around the genitals and in some parts of the trunk; soon larger cutaneous hemorrhages appeared in the public regions, in the labia and under the breasts. The ecchymoses occupied areas of the size of a dollar, they were not painful. She had no hemorrhages from the mucous membranes, no fever and no disturbances of the alimentary tract. I regarded the case as syphilis hemorrhagica and put her on antisyphilitic treatment. In the second week large hemorrhages appeared in the vulva and effusions under the breasts and also on thigh, occupying almost the entire surface of these regions. She was put to bed and given styptics internally. Contrary to orders she got up to walk over to the toilet, and while sitting there was seized suddenly by profuse hemorrhage from the rectum and vagina and, before the nurse could give her aid, she toppled over and fell to the floor. She died while being carried to her bed. It was undoubtedly a

toxemia which produced the change in the blood vessels. But of what nature? Pernicious anemia, leukemia and scorbutus could be excluded by the absence of their characteristic symptoms. Syphilis may pro-

of the knee began to form. The skin, which first was puffy and thickened, began to get thin, it assumed gradually the form of knitted cigaret paper with slight furfuraceous scaling.

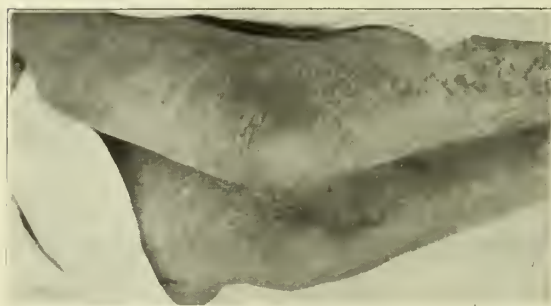


Case 3. Syphilis Hemorrhagica.

duce hemorrhages mainly of the purpuric type, but there are no cases on record of purpura fulminans due to syphilis. We must therefore assume that it was a toxemia of pregnancy which produced the excessive fragility of the blood vessels, already degenerated by syphilis, and which was the immediate cause of the fatal termination of this case.

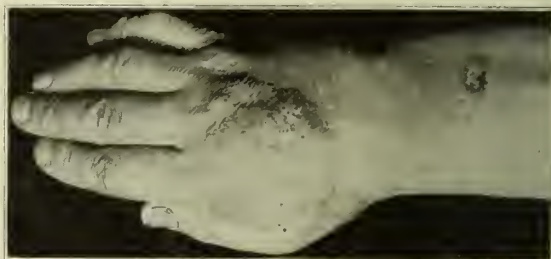
4. ATROPHIA CUTIS PROGRESSIVA.

The woman, 35 years of age, had this affection 9 months before she saw me. It started in the fifth month of her last pregnancy. It began with edema of the leg, which had lasted all through the time of pregnancy. The skin was thickened, inflamed with areas of exudation and scaliness, as in eczema. At the ankle bullae of considerable size frequently formed.



Case 4. Atrophia Cutis Progressiva.

After parturition the edema subsided, but the eczematous inflammation of the lower leg still continued. At this time atrophic changes in and around the region



Case 5. Circumscribed Scleroderma.

5. CIRCUMSCRIBED SCLERODERMA.

The woman is 27 years of age. The affection started in the first pregnancy, one year ago. It began with an erythematous patch which gradually spread to the size of a silver dollar. The edge was raised, of bluish red, violaceous color, and while spreading peripherally the center fell in, became thin and atrophic, of a grayish color. From the edge of the atrophic part minute blood vessels, closely set, pass through the raised wall. Two smaller spots of similar nature are present on the side of the arm.

6. ERYTHEMA EXUDATIVUM.

This woman, 32 years of age, was in the fourth month of pregnancy, the erythema was preceded by a severe pruritus, which was general, and had started soon after the beginning of pregnancy. The arms



Case 6. Erythema Exudativum.

were affected 6 weeks later. The lesions resembled the type of erythema nodosum.

32 North State street.

THE ACUTE ABDOMEN IN CHILDREN.*

D. N. EISENDRATH, M. D., AND ALFRED A.
STRAUSS, M. D.,Attending and Associate Attending Surgeons, Michael Reese
Hospital.

CHICAGO.

To those who do not have occasion to observe clinically and then operate on acute abdominal conditions in children, a paper like the present one would at first glance seem superfluous. There are, however, enough points of difference between the various affections which are grouped under the term "acute abdomen" in adults and those of children to justify careful study. In our service at the Sarah Morris Hospital for Children we have had such a large variety of instructive acute abdominal cases that we thought it might be of interest to group them, reporting only a few of special importance. When called

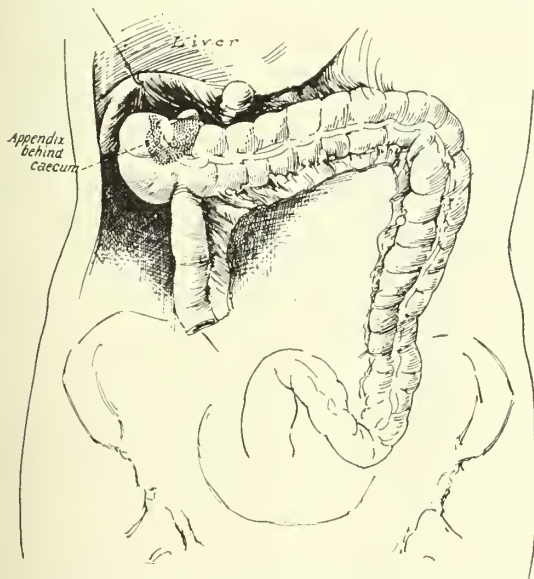


Fig. 1. Appendicitis in a girl of 5, with non-rotation of cecum. Appendiceal abscess was in subhepatic space.

to see a child or infant giving the history of some acute abdominal trouble one must have previously formed an outline of what lesions are most likely to occur between the ages of birth and of, let us say, 15 years. An easy classification for purposes of diagnosis is to think of which viscus is involved as in the following outline:

*From the Surgical Service of the Sarah Morris Hospital for Children (Michael Reese Hospital). Read before the South Side Branch of the Chicago Medical Society, Nov. 27, 1914.

I. APPENDIX.

1. Inflammation of an appendix attached to a fully rotated cecum.

2. Inflammation of an appendix attached to a cecum which is not rotated, i. e., lies just below the liver (Figure 1.).

Illustrative Case of Appendicitis in Non-rotated Cecum.—Girl aged 5½ years had been sick for five days before admission, with pain in the region of the umbilicus, repeated vomiting and fever. She never had any previous attacks. Upon admission the temperature was 100, pulse 110. White blood count 24,000, urine negative. The abdomen was not distended. It was soft everywhere except in the right upper quadrant, where there was marked rigidity and tenderness extending from the outer border of the right rectus muscle backwards toward the right renal region. The abdomen was opened through a right para-rectal incision, extending from the costal arch

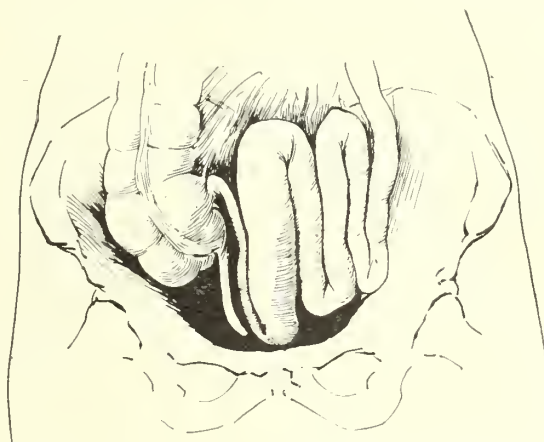


Fig. 2. Ileus due to kinking of coils of terminal ileum in the true pelvis, forming wall of an appendiceal abscess in case of pelvic appendix. (Boy of 11 years.)

to the level of the umbilicus. The diagnosis made before operation of acute inflammation of an appendix attached to a non-rotated cecum was confirmed. The ileum entered the cecum in a direction parallel to the long axis of the body and the cecum itself laid transversely just below the right lobe of the liver (Fig. 1). The appendix was retrocecal and was completely buried by an inflammatory exudate. It pointed upward and inward and was in close relation with the inferior (concave) surface of the right lobe of the liver. The appendix was greatly thickened, contained an enterolith and its distal half was gangrenous and was surrounded by very fetid pus. After its removal the subhepatic space was drained through a stab wound in the loin, in addition to the drainage through the anterior incision. After operation great emphasis was laid upon the necessity of keeping the patient in the Fowler position in order to pre-

vent gravitation of pus to the subphrenic space and the formation of an abscess in this space.

3. Inflammation of an appendix lying in the true pelvis and complicated by ileus due to kinking of the terminal ileum (Fig. 2).

Illustrative Case of Acute Appendicitis With Ileus.—Boy, aged 11 years, had been ill 3 days prior to admission. The illness began with diffuse pain in the abdomen, vomiting, fever and inability to secure a bowel movement. The abdomen was uniformly distended and tender, but rigidity was not marked. Rectal examination showed a mass high up in the pelvis. An incision was made in the middle line and a larger abscess in the true pelvis containing foul pus was drained. In spite of this drainage, the symptoms of intestinal obstruction continued. Two days after the first operation the original incision was reopened and a condition like that shown in Fig. 2 was found. Surrounding the appendix, which was gangrenous and perforated at its tip, there were several coils of ileum which were acutely kinked and obstructed by an in-



Fig. 3. Suppurating lymph nodes along external iliac vein simulating appendicitis.

flammatory exudate. Attempt was made to relieve this acute obstruction, but without any benefit, patient dying in a few days. In two cases operated upon by us since the above case the diagnosis of ileus was made at the time of the first operation and in addition to a primary appendectomy the acutely kinked coils of ileum were brought out of the pelvis and kept from falling back into it by gauze drainage emerging through a stab wound.

4. Acute tuberculous infection of the appendix simulating ordinary acute pyogenic infection.

5. Acute inflammation of the lymph glands along the iliac vessels (Fig. 3).

Illustrative Case of Suppuration of Deep Iliac Glands, Simulating Appendicitis.—Boy, aged 4 years,

was admitted with the history of sudden onset of generalized abdominal pain, fever, nausea and constipation which began 4 days before. The pain had become more severe during the 24 hours preceding his admission and had become localized in the right iliac region. He had vomited once and had high fever during these last 24 hours. The previous history was negative and child never had similar attacks. Upon admission the temperature was 101 F. (rectal), pulse 120, white blood count 26,800, urine negative. The abdomen was soft everywhere except in the right iliac region, where there was marked rigidity and tenderness. Rectal examination negative. Immediate operation was decided upon with a diagnosis of acute appendicitis. Under anesthesia one could feel a distinct mass deep in the right iliac fossa (Fig. 4) which was thought to be the appendix surrounded by omentum or agglutinated intestines. While making the incision along the outer border of right



Fig. 4. Mass felt through abdominal wall, in case of child of 4, simulating appendicitis, but due to suppurating lymph nodes along external iliac vessels, secondary to infection on foot.

rectus muscle a marked edema of the connective tissues was noted. The peritoneal cavity was opened and the appendix easily found. It was free and although its serous coat was rough and injected, these changes were evidently due to the fact that the appendix had rested upon a mass lying in the right iliac fossa along the iliac vessels, which was extraperitoneal, but had caused a bulging inwards of the peritoneum lining the iliac fossa. The mass was about the size of a walnut, hard and irregular in outline except at its center, where there was distinct fluctuation. There was a fibrous deposit on the peritoneum covering the mass and the peritoneum itself was very red and roughened. After removing the appendix, the edges of the peritoneum were closed with chromic gut and by raising up the peritoneum lining the iliac fossa we were able to reach a mass of lymph nodes, which had become acutely inflamed lying along the

external iliac vein at the pelvic brim. Several of these nodes contained pus, from which cultures were made and showed the streptococcus pyogenes alone. Examination for a possible source of this deep iliac lymph node infection revealed the fact that the boy had an infected big toe about 4 weeks before. This had healed and the parents had not thought it necessary to mention in connection with his present illness. The infection had passed the superficial nodes along Poupart's ligament without being arrested and had been stopped by the deep iliac chain of glands. The boy made an uneventful recovery. The chief points of interest in the case are its perfect simulation of an acute appendicitis and the impossibility of distinguishing between the two conditions in the absence of a history of some peripheral source of infection.

6. Subphrenic abscess complicating appendicitis.

II. ACUTE AFFECTIONS OF THE LIVER.

Illustrative Case of Abscess of the Liver (Usually Metastatic and Rare in Children).—Girl, aged 2½ years, was admitted with a history of having pain in the abdomen for 2 weeks. There was a marked rise in temperature every evening, but no chills. Four days before her admission the pain, which had been epigastric, became localized in the right upper quadrant. She was sent to the hospital with the diagnosis of acute appendicitis. She never had any similar attacks, but had been operated upon for mastoiditis seven months before the onset of the present trouble. At that time there were no symptoms of pyemia, but an incision was made over the mastoid, which evacuated considerable pus. Upon admission her temperature was 101, pulse 144, white blood count 22,000, urine negative. Examination of the abdomen showed that it was not distended, but soft everywhere with the exception of the ilio-costal space, where there was distinct rigidity and tenderness. The diagnosis before operation was appendicitis in a retro-cecal appendix. Upon opening the abdomen through a right para-rectal incision the cecum and appendix showed no inflammatory changes, the appendix being free and pointing downward and inward. A mass was now felt in the right subphrenic space covered by acutely inflamed omentum which could easily be separated from it. On the convex surface of the right lobe of the liver in the axillary line was a mass which bulged into the subphrenic space and from which thick, yellowish pus escaped upon separation of the omentum. It was evidently a large abscess with multiple foci extending through the entire thickness of the right lobe. After drainage of this abscess patient made an uneventful recovery. Cultures taken from the pus at the time of operation showed the staphylococcus aureus alone. Abscess of the liver in children is very rare. The chief point of interest is, we think, the etiology in this case and it is our opinion it was secondary to the mastoid infection which had occurred seven months before and had remained latent until it had reached the surface of the liver.

2. Acute cholecystitis and cholelithiasis (rare, only 16 cases reported previously).

Illustrative case: Girl, aged 15 years, had her first attack of pain one year before admission. The pain was first felt in the right hypochondrium and radiated to the opposite side and to the back. The first attack lasted about 12 hours, during which time she vomited twice. During the year preceding her admission she had a number of similar attacks and at times would become quite distinctly jaundiced. Four days before her admission an attack quite similar to the first one began, but the pain continued for 4 days, accompanied by fever and marked leucocytosis. Her temperature when first seen by us was 101, white blood count 20,000, urine negative. Examination showed marked rigidity and tenderness in the right upper quadrant. The diagnosis before operation rested between acute cholecystitis and acute appendicitis with non-rotation of the cecum. Under anesthesia, the rigidity having disappeared, an elongated tumor attached to the right lobe of the liver and easily recognizable as a distended gall-bladder could be felt. Upon opening the abdomen a greatly distended gall-bladder containing many calculi was found. After removal of about 50 calculi varying in size from a pea to a lima bean, the gall-bladder was removed. It showed all the signs of long-standing inflammation with marked thickening of all its coats. The mucosa was intensely hemorrhagic as a result of the recent attack. Patient made an uneventful recovery.

III. ACUTE AFFECTIONS OF THE INTESTINE.

1. Obstruction due to, a, intussusception (most frequent of all); b, persistent Meckel's diverticulum (rare).

Illustrative Case of Acute Meckel's Diverticulum With Ileus.—Boy, aged 6 years, after indiscretion in diet complained of severe umbilical pain and inability to secure bowel movements prior to admission. Abdomen was found greatly distended; temperature was 102. The diagnosis before operation was intestinal obstruction. Upon opening the abdomen, in addition to the strangulation of some coils of ileum beneath a band (Fig. 5) passing from the mesentery of the ileum to the tip of a Meckel's diverticulum, the latter was found to be acutely inflamed and gangrenous with two perforations near its base. In addition to this there was a stenosis and rotation of the gut distal to the base of the diverticulum. In spite of the establishment of an artificial anus, the patient died in a few days.

c. Kinking of coil around inflamed appendix (rare).

d. Strangulation of hernia (relatively rare).

Illustrative Case of Intussusception.—(See Fig. 6.) Baby, aged 3 months, breast fed for first four weeks of life, then condensed and bottled milk, was taken suddenly ill on Sunday, October 11, 1914. Parents noticed child became very pale and vomited and that they were unable to obtain a bowel movement, but

the child passed bloody mucus. All efforts to secure a bowel movement were unavailing and child was brought to hospital at beginning of third day of illness. Upon examination child appeared to be in collapse. There was some rigidity over pubes and through the rectum one could feel the apex of an

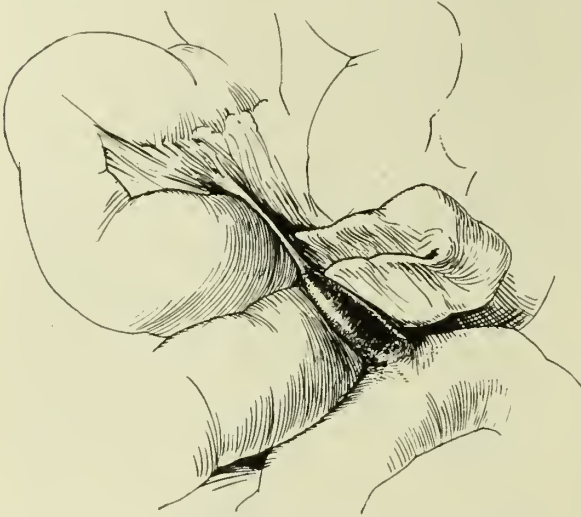


Fig. 5. Ileus due to adherent terminal ligament of a Meckel's diverticulum in a boy of 6. Diverticulum was gangrenous and had two perforations at its base.

intussusception. The abdomen was opened in the median line and there presented itself a typical intussusception of the ileocecal variety. The efforts at reduction were without avail. The serous coat of the colon tore when efforts at traction were made. The only choice was between resection and the establishment of an artificial anus. The ileum above the obstructed area was greatly distended. The terminal ileum, appendix, the cecum and ascending colon as far as the middle of the transverse colon were involved. A lateral anastomosis was performed between the ileum and the sigmoid after resecting the entire intussuscepted portion. For a number of days after the operation the child had many bowel movements, and every day seemed to be losing ground rapidly. On the sixth day a slight infection of the superficial portion of the wound was discovered and while changing the dressing on the wound on the eighth day a partial evisceration occurred. The protruding coils of ileum were held within the abdomen by strips of adhesive plaster and the skin has healed over the intestine with a formation of a ventral hernia. Thanks to the co-operation and advice of our medical colleagues in the Sarah Morris Hospital, especially Dr. Ernest Lackner, we are pleased to report an apparently complete recovery with continued gain in weight. The mortality of resection for intussusception up to the age of 1 year has been nearly 100 per cent, so this case is an unusual one.

2. Inflammation of Meckel's diverticulum.

IV. ACUTE INFECTIONS OF THE PERITONEUM.

a. Acute pyogenic inflammation secondary to appendicitis, inflammation of Meckel's diverticulum or gangrene of ovarian cyst following twist of its pedicle.

b. Acute tuberculous peritonitis occurs often enough to be considered.

In addition to the above, the following must be thought of: Infections of the kidney, ureteral calculi (very rare in children) referred pains from pleurisy or tuberculous spondylitis, twisted ovarian cyst, oophoritis following mumps, acute septic salpingitis of little girls, inflammation of the intra-abdominal portion of vas deferens in mumps, inflammation or torsion of undescended testis. We have mentioned these conditions in detail for the reason that one must be more frequently prepared to find unusual causes for acute abdominal conditions in children than in adults. This is due in part to the role which persistent embryologic structures or conditions play.



Fig. 6. Ileocecal form of intussusception. Note how ileum and appendix are invaginated into cecum and ascending colon.

The younger the child, the less marked is pain and tenderness. The same is true of vomiting. Rigidity of the abdominal muscles is also not as marked as in the adult and one is very apt to be led astray by the softness of the abdomen in

some cases of severe generalized peritonitis. Tympany appears earlier and is more pronounced both in inflammatory and obstructive conditions. An exception to the latter is in intussusception where a distended abdomen is rather the exception than the rule. Many young children have bowel disturbances which are diagnosed as ordinary colic and it is only after the appearance of septic symptoms that those not trained to watch such an abdomen are led to think of more serious trouble. The white blood count is often the most puzzling symptom. We have seen a leucocytosis of 30,000 to 40,000 and found only an intensely injected appendix. On the other hand a perforated appendix with peritonitis will often show a very low blood count (9 to 11,000), especially if there is little resistance owing to extreme sepsis. Peculiarities of the position of the appendix account for many of the anomalies in rigidity and tenderness. In many children the appendix is retrocecal or dips down into the true pelvis. In the former (retrocecal appendix) the tenderness and rigidity are only marked in the space between the last rib and the crest of the ileum in the axillary line. In the pelvic appendix there is very little rigidity except above the pubes. We cannot emphasize too strongly the necessity of routine rectal examination in the diagnosis of acute temperatures, there being often a difference of 2 to 3 degrees between the mouth and rectal readings. The pulse rate is of less value than in adults, because an increase takes place relatively earlier. Children become very toxic and septic early in the disease, often within the first 24 hours, accompanied by rapid pulse and low temperature. Coincident with these more rapidly appearing clinical symptoms in children is the rapidity with which pathological changes take place. With a history of only 18 hours to 24 hours duration of the illness one will often find changes in the tissues or organs which in the adult would not occur until 48 to 72 hours had elapsed. One may find a ruptured gangrenous appendix with well marked general peritonitis in the first 24 hours. The rapidity with which evidences of shock and toxemia develop only emphasize the necessity of early recognition and treatment. Another factor is that the diagnosis becomes to a large extent an objective affair because localization of pain is very difficult in young chil-

dren and one must often depend upon physical findings alone.

Altogether the diagnosis in children requires far more experience than the same conditions in adults. One should constantly bear in mind the above mentioned list of the most frequent acute abdominal conditions in children.

We wish to thank our colleagues of the medical department of the Sarah Morris Hospital, Drs. I. A. Abt, J. H. Hess and Ernest Lackner, for their co-operation.

TRAUMATIC HERNIA.*

C. W. HOPKINS, M. D., CHICAGO, ILL.

In the discussion of "Traumatic Hernia," the inguinal type being the most common, we at once assume that inguinal hernia is what is meant, when the subject of traumatic hernia is presented. This is the type of hernia that is giving all of us more and more concern, by the increasing number of claims of injury that are presented to us by a certain class.

The more I see of these cases of so-called traumatic hernia, with the alleged ease of their acquirement, and with the absence of the symptoms that should have presented at the time the hernia was said to have been received, the more firmly I am convinced that the actual occurrence of traumatic hernia, in the average individual who comes before us, is rarely, if ever seen.

Men of various occupations, in railroad work in particular, come to you three or four days, or a week or two weeks or longer, after an alleged injury, and claim that the hernia occurred at the time of a "strain," a misstep, a squeezing or over-lifting, a fall, or even a blow. They claim they did not notice it at the time, but did some hours or days later, perhaps while taking a bath. They further state that they did not feel any pain at the time of the supposed accident, nor was there any shock or vomiting or disability, and in fact they had lost no time from the date of the alleged acquiring of the hernia to the time they see you. They claim that they never noticed it before, and are quite sure that the cause they allege must be responsible for it.

At the time they come to you, you will find in the majority of cases, that there is a well devel-

*Discussion of paper read by Dr. R. R. Duff on "Traumatic Hernia" before the Chicago Medical Society, January 20, 1915.

oped hernia, sometimes with old marks of a truss. Many times there is a serotal hernia of large size. You find no soreness, no ecchymosis, no effusion into the tissues, and no tenderness upon palpation or rigid examination. It is easily reduced and readily returns upon standing. In nine cases out of ten, you will find that there is a large patulous ring on the opposite side, and, upon close examination of that side, you will also find an impulse upon the examining finger when the individual coughs.

In spite of the vague history presented and lack of acute symptoms, and in spite of the fact that you are sure, when taking the real cause into consideration, that the condition is an inherent one, it is useless to try to convince them that every man who develops this condition was born with a potential hernia. They will leave your office and go to their family physician who will often agree with them in every detail, and back them up, even upon the witness stand, testifying that the alleged hernia could have occurred and actually did occur as the patient claims, regardless of the absence of any accompanying symptoms that should necessarily have been present when true traumatic hernia occurs.

Taking into consideration the fact that there are thousands of men of all ages, who are engaged every day in occupations requiring heavy lifting, hard straining, in acrobatic work, etc., and who sustain severe falls and strains, why, if extraordinary muscular effort or great intra-abdominal pressure are the sole causes of hernia, are not all of these men victims of hernia?

There are no doubt cases of traumatic hernia, but in railroad work, in particular, where we are called upon to care for patients who have received falls or squeezings through the abdomen and pelvis, causing the most extreme intra-abdominal pressure, sufficient to cause rupture of the bladder, kidney, liver, intestines, or to crush the pelvis, why is it we never find a hernia as a concomitant unless the injuries were probably of sufficient severity to cause death. Nevertheless the average individual will stand up and try to convince you that a well developed hernia, with the necessary sac of peritoneum reaching well down into the scrotum, occurred but a few days before and without any marked symptoms, and with no disability on his part, up to the time he consults you.

In the present state of chaos, which exists, on account of the various opinions and contentions, it has been considered best, by most employers, to have these cases operated upon as the best means of settling a difficult matter, because there are any number of would-be experts who will take the stand and swear to the possibility of the hernia being acquired in the manner and at the time it is alleged by the patient. It also seems to be a settled fact that the supposed patient will be given a verdict by the average jury, regardless of the merits of the case or the facts produced by the defense, and as the matter now stands, it would entail much fighting and undesirable advertising.

When the patient is placed upon the operating table for an operation, with the parts thoroughly relaxed, we find large open rings without any induration or effusion into the tissues surrounding them. When the tissues are divided and the sac located, you invariably find a smooth, tough, elongated cul-de-sac, snugly lying along the cord, adherent throughout its entire length, and in many instances a certain amount of peritoneal fat or bowel lying within this sac and adherent to it, throughout its entire length, even to the bottom of the sac. These tissues you are compelled to cut away or carefully loosen from the sac wall before they can be reduced, and in many cases where only the peritoneal fat fills the sac, it has to be ligated and taken away with the sac. There are cases in which you find an old hydrocele of the cord, where you are compelled to open and drain before the sac can be found and separated out. There are other cases where you find a well defined double sac, or two sacs coming off separately from the base at the internal ring. Many of these cases you operate upon forty-eight hours after the alleged injury, finding the above conditions, and in spite of the claim of recent injury, you do not find any extravasation of blood or serum, nor the slightest laceration of tissues, but a smooth, tough, adherent sac that has existed, probably from birth, and has depended upon a series of repeated blows or impulses by the abdominal contents in forcing themselves down into the canal, carrying the already formed sac ahead of them, and which was ready for some unusual force to bring it a little further down, sufficiently to make itself apparent, and to cause more or less discomfort by being forced a little

beyond the long existing, slowly acquired beaten path.

Another peculiar phase of this claim of traumatic hernia, is, that we find in men such as engineers, firemen, brakemen, crossing flagmen, section foremen, special police, and the dining car employes of a railroad, who have passed an examination before entering the service, that the claim of traumatic hernia amounts to less than one-quarter of one per cent. On the other hand, the foreigner, such as the Greek, the Italian, the Pole, and other men who do not pass this preliminary examination, before being admitted to the service, comprise ninety-nine and three-quarter per cent of the cases of alleged traumatic hernia that present themselves to you. What is the answer? I feel sure that the one-quarter of one per cent. of these men who do appear, who have been examined for service, had enlarged rings with a sac formation that could not be felt or demonstrated at the time of the examination, or we would not have had them before us with a subsequent hernia.

Within the last few months I have had three cases in particular, of alleged traumatic hernia, supposed to have been received but a few weeks prior to my examination, and who claimed to have received the hernia while lifting a can of milk or while using a crow bar or lifting a hand car. None of these men had taken the preliminary examination for the service. Upon operation I was unable to find any external or internal ring or any well defined sac, but did find a big general bulging of the whole abdominal wall on that side, which showed that the entire canal had been obliterated and the two rings fused, and one big opening created allowing the formation of a large peritoneal sac or pouch, the contents of which had to be reduced and the sac or pouch ligated in sections, and the entire abdominal wall in that locality rebuilt to obtain any kind of a result. These cases all claimed to have been injured but a short time previously, and still there was not the least sign of recent injury, such as torn or lacerated tissues or evidences of recent effusion or extravasation of blood or serum.

We have learned, especially during the present war, that the Germans are a very efficient and painstaking lot of fellows, with the greatest observance of detail, and it has been decided by the surgical staff of the Germany Army that unless a

man had witnesses to his accident, and presented certain symptoms, and was disabled a certain length of time, the claim of traumatic hernia would not be recognized or allowed. On this side, however, there are many surgeons who still claim that a man can receive traumatic hernia, yet present no symptoms, such as shock, vomiting, pain, etc., and that he can work continuously, after the alleged receiving of the hernia, up to the time he presents himself for examination, and will give him a certificate to his employer to that effect.

It is being allowed by the courts and by the Workmen's Compensation Act every day. Consequently, the larger corporations are already beginning to examine every man in their employ to obtain a record as to his physical condition, and are demanding that every man who applies for employment, be examined before being put to work, so that they can protect themselves against this claim for traumatic hernia, which is being made against them, when in many instances, there is not the slightest history of any injury to the employe or even a record of any accident.

This matter has got to be settled definitely one way or the other. No corporation, or combination of corporations or insurance companies will be able to settle it, but it will have to be settled by the law after it has been sufficiently thrashed out to convince the lawmakers of the real conditions and facts. If this is not done, it will certainly ultimately work a hardship upon the very men that the law is seeking to protect, as the average working man or laborer, who has hernia, will be either eliminated or kept out of employment. This same man, who is usually the laborer, rarely has sufficient money ahead to pay his expenses at a hospital and to have a competent surgeon for an operation, and the only result that I can see, is that they are bound to become public charges, sooner or later, and will overload our public institutions in order to correct an old inherent condition, so that they can obtain employment and become self sustaining.

Every one of you is familiar with the descent of the testicle, and how nature is supposed to close the ring about the time of birth, after the testicle has descended through the ring, and how she sometimes fails, as is proven by the development of inguinal hernia in children only a few weeks or months old. If this is fully understood, it certainly does not seem difficult for us all to see

why a man develops hernia, and that every man who does in later life must have been born with potential hernia, only waiting for the proper time to make its appearance, and which the employer or insurance company will be expected to pay for, and which they should not pay for any more than they would be expected to pay for a case of protruding hemorrhoids, which we know takes certain conditions and time to make their debut into the outside world.

Some of our best surgeons have gone so far as to invariably operate upon both sides, when a case of hernia comes to them, even when nothing more than a large patulous ring is to be found on the other side, and, without exception, results show they have been justified in the procedure. In my own past experience with this class of cases, in railroad work, I do not believe they are too radical.

A BILL TO REGULATE EXPERT TESTIMONY.

HAROLD N. MOYER, M. D.,
CHICAGO.

The bill which it is proposed to introduce at this session of the Illinois State Legislature is the joint product of committees appointed by the American Bar Association, American Institute of Criminal Law and Criminology and the American Medical Association. The personnel of these committees includes jurists and physicians. For three years the provisions that it is now proposed to embody in the law have been under discussion. The final outcome was a bill that involved the application of certain general principles which, modified to suit local conditions, could be placed in a bill for each state.

At first thought it may appear that this bill, limited as it is to expert testimony in criminal cases in which the plea of insanity is raised, is a very slight advance in the solution of the problems of expert testimony. It leaves untouched the bulk of cases in which medical men testify. It seemed to the several committees that this was a wise provision, that the first step in the proposed change should be short. If the provisions of this bill were made to apply to all cases, both civil and criminal, and then some of its provisions were found obnoxious to the constitution, it would complicate the record in a large number

of cases and cause unnecessary hardship. It is probable that these considerations would be deemed important by the legislature, and they would have less hesitation in passing a bill of limited application. The restriction to criminal cases brings under its provisions those cases that are most in the public eye, and in which the defects in present methods are most glaring. If after its enactment it proves satisfactory it can be extended from time to time to other classes of litigation.

Section 1. Summoning of Witnesses by Court.—Be it enacted by the people of the state of Illinois, represented in the general assembly, that whenever in the trial of a criminal case the issue of insanity on the part of the defendant is raised, the judge of the trial court may summon one or more disinterested, qualified experts, not exceeding three, to testify at the trial. In case the judge shall issue the summons before the trial is begun, he shall notify counsel for the prosecution and defense of the witnesses so summoned. Upon the trial of the case the witnesses summoned by the court may be cross-examined by counsel for the prosecution and defense. Such summoning of witnesses by the court shall not preclude the prosecution or defense from using other expert witnesses at the trial. The witnesses summoned by the judge shall be allowed such fees as in the discretion of the judge seem just and reasonable, having regard to the services performed by the witnesses. The fees so allowed shall be paid by the county where the indictment was found.

In effect this section creates two classes of experts, those summoned by the court and those which may be called by either the prosecution or defence. This provision is essential to make the bill constitutional, as no defendant can be prevented from introducing testimony which is competent to prove the issue in his case. It will be noted that this section is not mandatory; it is left wholly to the discretion of the court.

Section 2. Examination of Accused by State's Witness.—In criminal cases no testimony regarding the insanity of the defendant shall be received from witnesses summoned by the defendant until the expert witnesses summoned by the prosecution have been given an opportunity to examine the defendant.

There is some doubt of the constitutionality of this section in Illinois. It may be omitted when the bill is submitted. If eliminated then or on its passage, the other provisions would not be affected.

Section 3. Commitment to Hospital for Observation.—If in a criminal case the issue is raised that the defendant is insane so that he ought not to be tried, the judge of the trial court shall commit the defendant

to a state hospital for the insane, preferably the one nearest the place of trial, to be detained there for purposes of observation until further order of court, provided that the duration of such detention shall not exceed three months. The court shall direct the superintendent of the hospital to permit all the expert witnesses summoned in the case to have free access to the defendant for purposes of observation. The court may also direct the chief physician of the hospital to prepare a report regarding the mental condition of the defendant. This report may be read at the trial of the issue of insanity by the said chief physician after he has been properly sworn as a witness. After reading the report the witness may be cross-examined by counsel for the prosecution and defence.

This provision is already part of the law in five states, where it has proven practical and useful. It is a simple provision by which the state can avail itself of machinery already in operation. If it shall appear to the judge that the accused is in such a mental condition that he ought not be tried, he can be sent to a state hospital and there remain under observation until his mental condition can be ascertained. This provision would enable the judges to exercise greater discrimination in administering the criminal law. If in doubt of the person's sanity, or if the suspected feigning, all that is needed is a summary commitment to a state hospital for observation. This provision would lessen the number of insane and feeble-minded now in the state penitentiaries.

Section 4. *Written Report by Witnesses.*—When the issue of insanity has been raised in a criminal case each expert witness, who has examined or observed the defendant, may prepare a written report, based upon his examination or observation, regarding the mental condition of the defendant, and such report may be read by the witness at the trial. If the witness presenting the report was called by the prosecution or defence, he may be cross-examined regarding his report by counsel for the other party. If the witness was summoned by the court, he may be cross-examined regarding his report by counsel for the prosecution and defence.

If no other provision became part of the law of this state than section four, it would be a distinct advance in the admission of expert testimony. It enables a physician testifying as an expert to bring into court a concise statement of his findings and the reasons for his conclusions. Under such a rule the half truths and defective presentations now introduced would be lessened. At least there could be no excuse for them on the part of the expert.

Section 5. *Joint Report by Witnesses.*—Wherever

in a criminal case expert witnesses have examined or observed the defendant, on whose behalf the issue of insanity has been raised, they may consult before testifying, and may prepare a joint report regarding the mental condition of the defendant. This report may be read at the trial by one of the experts who joined in the report, after all the experts who joined in the report have been duly sworn as witnesses. All the experts who joined in the report shall be subject to cross-examination by counsel for the prosecution and defense.

This is an extension of the Leeds system. It, like the preceding section, is not mandatory, but it permits expert witnesses to consult and if they agree they may submit a joint report. Possibly it will be found that under this provision there will be less disagreement among experts than has heretofore been believed. Trials as at present conducted usually magnify differences, which in many instances are only verbal definitions.

I feel that the profession should give its hearty and unanimous support to this bill, even if it does not meet individual views. There can be no question but that it is a distinct advance on present methods; it may be argued that it does not go far enough, but this is a distinct merit; far better make a short advance than one in the wrong direction.

An especial merit of the bill is that each of the sections are independent. One can hardly conceive of the entire bill being pronounced unconstitutional. Should it be placed on the statute book and one or more of its provisions become inoperative, there would still be some advance toward placing this subject on a higher forensic and scientific plane.

160 West Jackson boulevard.

TUMORS OF THE BLADDER.*

CLARENCE MARTIN, M. D.

ST. LOUIS, MO.

First Lieutenant M. R. C., U. S. Army; Visiting Genito-Urinary Surgeon, St. Louis City Hospital; Late Clinical Assistant, St. Peter's Hospital for Stone and Other Urinary Diseases (London); Member Berlin Urologische Gesellschaft; Association Military Surgeons, Etc.

I hold tumors of the urinary tract, and, more narrowly, of the bladder, to be the most vital question now waiting solution at the hands of the genito-urinary surgeon, and that it is the duty of each one of us to contribute his individual experiences with these new growths to the

*Read before the Sangamon County (Ill.) Medical Society, Springfield, Feb. 22, 1915.

profession's common fund of information. Practically there is uniformity of opinion among medical men regarding the histological classification of tumors of the urinary tract, and what we now urgently need is their early recognition and a standardization of management.

The most commonly met tumor projecting into the male bladder is a simple adenomatous hyperplasia of the prostate gland, and I want to touch lightly upon it before taking up other growths of the mid-urinary zone.

As to the causative influence of simple hypertrophy of the prostate gland, not much of a positive character can be said. An attractive theory is that long continued antecedent inflammation lays the foundation for the condition. Even nearly two hundred years ago we find this theory popular, John Hunter holding to it. The *modus operandi* of the process is given by Ciechanowski as follows (quoted by Freyer):

A catarrhal process occurs in the acini, producing active proliferation, desquamation, and degeneration of the epithelium; at the same time a productive change takes place in the stroma, which compresses the excretory ducts of the acini, narrowing or obliterating them. The latter prevents the escape of the contents, the secretions accumulate within the acini, and the lobules enlarge. The prostatic urethra is said to be the origin of the disease, which extends thence along the gland ducts from the urethra towards the periphery of the gland.

This same writer has more recently suggested that atrophy of the prostate—which, by the way, can cause the usual symptoms of enlargement—may be due to peripheral inflammatory compression, the acini being compressed rather dilated. Another curious point to which this same author calls attention, in touching upon the etiology of prostatic hypertrophy, is the fact that dogs, which are the only domestic animals that suffer from an infectious urethritis, are also afflicted with enlarged prostate. It is evident that Ciechanowski introduces this odd analogy to strengthen his inflammatory theory of enlargement. But, however interesting Ciechanowski's efforts to establish this theory on a firm basis may be, it is not tenable, for, just as von Frisch comments, in quoting the views of Rovsing, Thompson, Caspar and several others, a chronic prostatitis, like every other chronic process, finally leads to destruction of parenchyma, to contraction of connective tissue and atrophy, and

not to an increase in volume of the organ concerned.

This discussion of the etiologic significance of chronic inflammation of the prostate is largely of academic interest, its only practical phase being seen in the choice of route in the small fibrous, inflammatory prostate, in the removal of which the most suitable route undoubtedly is through the perineum. The removal of this type of prostate through a suprapubic wound can occasion a great deal of trouble, whereas the facility with which the genuinely hypertrophied gland with marked intravesical projection, can be enucleated, is one of the delights of surgery.

It is rather generally understood that in not infrequent instances a carcinomatous condition of the gland is grafted onto the adenomatous hyperplasia, but that 14 per cent. of enlarged prostates are malignant, as the French school would have us believe, is rather difficult to accept. French urologists do not claim that such a large percentage of malignancy is discoverable clinically, but that a searching examination of a considerable number of sections cut from various planes of the specimen will show this large incidence of malignancy. However questionable we may think these figures to be, yet it is wise for us to accept and disseminate them for thereby we may counteract, in a measure, the proneness of both physician and patient to postpone operation until the time when it is a *dernier ressort*; and let us be jesuitical enough to employ any device that will add to the safety of urological surgery.

I am not going into the diagnosis of prostatic hypertrophy—the subject is too trite for us tonight—but I do want to insist upon the skilled use of the cystoscope before operating. In expert hands but the most trifling, if any, damage is done, and the information gained overwhelmingly offsets the slight disadvantages which might follow. In a personal experience of several hundred cystoscopic examinations of prostatic cases, but rarely has any inconvenience followed and then of the most trivial character. The pre-operative visual examination of the bladder adopted as a routine measure is of immense value, and, furthermore, in a certain percentage of cases it will save much embarrassment to the operator. Thus, just two or three weeks ago a

physician sent me a kinsman for a prostatectomy. The doctor was so sure that his diagnosis was correct, and per rectum the gland did feel considerably enlarged, that he was considerably annoyed at my insistence upon a further examination. With my finger in the rectum palpating the vesical base above the prostate, I could just barely feel the edge of what seemed to be an indurated area. Upon cystoscopy this case, the floor of the bladder was found to be an ulcerating, carcinomatous mass. In such cases if you open up the bladder in anticipation of an enucleation of the gland and then sew up without doing anything, it is going to be a difficult matter to satisfy your patient and his relatives that what you did was the proper thing. They will want to know why you did not find out beforehand that the case was inoperable.

I contend that easily in 75 per cent. of cases not only is it impossible to make an accurate cystoscopic diagnosis of vesical carcinoma, but that it is also possible to determine with about the same degree of accuracy the operableness of the growth. It must be remembered that primary cancer of the bladder walls co-existent with simple adenomatous hypertrophy of the prostate is not particularly rare. Any genito-urinary surgeon with access to a fair amount of material sees such cases from time to time. I have come in contact with a number of cases in which the prostate was held responsible for the frequency, pain and hematuria, and yet it was a malignant growth causing all the trouble. Not very long ago one of my general surgeon friends put a case in a hospital for a prostatectomy. Merely to gratify his curiosity to see the inside of a prostatic's bladder, he had me cystoscope the case. To his surprise as well as mine, the most obvious image in the viscus was an ulcerating carcinomatous growth on the left bladder wall. Needless to say, the prostatectomy was indefinitely postponed.

I cite these instances to lend emphasis to my contention of the wisdom of making it a routine practice to cystoscope every case of enlarged prostate. But one may ask, "What if hemorrhage makes it impossible to get a clear medium?" Let the answer be, that vesical hemorrhage in men of fifty and past is so highly suggestive of cancer that a cystoscopic examination is therefore all the more imperative. A few

days careful irrigation with silver or adrenaline, will usually enable us to make the examination and permit a determination of the bladder's condition. Insofar as simple enlargement is concerned, the advantage of cystoscopy the patient is that thereby we are enabled to ascertain the extent of intravesical projection and to determine upon the logical route of attack. There is no distinctive cystoscopic picture in the average case of malignant prostate, and, as a rule, the differential diagnosis is made per rectum. the stony-hard, firmly fixed gland pointing clearly to the nature of the growth.

Having had in the past six weeks the unhappy experience of being consulted by three cases of inoperable vesical carcinoma, in two of which the initial hemorrhage dated back 28 or 30 months before, I feel that I am justified in urging the general practitioner to adopt an appreciation of vesical neoplasms more commensurate with their importance. In the professional mind, the clinical distinction between primary tumors of the bladder walls and prostatic hypertrophy, unfortunately, is not clear enough, and furthermore, the dangerous significance of vesical hemorrhage is not sufficiently realized; surely, if there ever was a danger signal in medicine it is a urinary hemorrhage, and particularly one from the bladder.

Since benign connective tissue growths in the bladder are very rare, indeed, and every papilloma, even though histologically benign, is potentially malignant, we are justified, from a practical standpoint, in declaring all tumors of the bladder walls to be of a highly dangerous nature. In fact, it would be the better part of safety to spread the doctrine that *every* bladder growth is malignant, even though such teaching deviate somewhat from the actual truth. In most instances it is true that papillomata do not infiltrate the bladder wall—and this is the clinical acid test of malignancy—but eventually, and particularly upon recurrence, they do manifest the characteristics of malignancy and prove dangerous. Notwithstanding this well known inclination of the non-infiltrating, pedunculated type of papillary bladder tumors toward malignancy, some still adhere to the pernicious teaching that since histologically they are benign, ergo they cannot be dangerous.

Whilst cystoscopically these growths afford one

of the most fascinating of cystoscopic images, floating in the distending medium like a bit of sea-weed and readily discernible, yet in some few instances it is not possible to determine with positiveness whether the tumor is benign or whether infiltration has occurred. The growth may be so large or situated at such a point that one cannot judge accurately of the mural attachment. However, in passing on this phase, here are two practical points that are quite trustworthy: The thicker the pedicle and the broader its point of attachment, the more likely is the growth to be not only clinically malignant but histologically as well. And also the delicate, waving, fringe-like villi of benign papillomata are in marked contrast to the closely cropped, stunted villi of the papillary variety of cancer. Where a zone of brawniness is discernible at the point of attachment, the growth is undoubtedly cancerous.

German writers struck by the disproportionately frequent occurrence of papillomata in dye-workers, have assigned the irritation of dye products excreted through the kidneys as a direct causative factor, but a flaw in this argument, just as Thomson-Walker points out, lies in the fact that the direction of the efflux current is away from and not towards the customary site of papillomata, which is above and to the outside of the ureteral orifices. But, be this as it may, stimulating irritation of some character undoubtedly does play a highly important etiological rôle not only in simple papilloma but also in carcinoma.

I am very much opposed to the snaring of these tumors with either the hot or cold wire, a procedure which has enjoyed wide popularity on the continent. It is this class of growths which permit the utilization of the high frequency current to best advantage. While sufficient time as yet has not elapsed to allow us to speak with decisiveness on the efficacy of the high frequency spark, yet it seems likely to measure up favorably against the open operation. Recurrence after the open method, not only in the bladder but also in the wound, have been its discouraging feature. I have been very much pleased with my results with the high frequency in vesical papillomata and the polypoid excrescences so frequently seen

around the urethral orifice, and which may give rise to the most distressing urinary trouble.

Case. An interesting illustrative case of the latter class came under my observation quite lately. Female, unmarried, aged 61 years, referred by Dr. H. D. Carley. For a very long period this patient had had a diurnal frequency of 15, at night of 7 or 8; at times the frequency for the twenty-four hours going as high as 25. The bladder was normal, but springing from the sphincter muscle was a large, sessile polypoid mass. Fulguration brought about prompt diminution in the growth's size and reduction of frequency to 7 or 8 times during the entire twenty-four hours. This patient now can hold her water for three hours.

That no false hopes be held out to the patient it must be made plain that this mode of treatment is not applicable in frankly malignant growths, except as a palliative measure.

As to the symptoms of simple papilloma just as in early malignancy, hemorrhage is the only evidence that a bladder wrong exists. However, it occasionally happens that a papilloma attached by a long pedicle to a juxtasphincteric base, is grasped by the muscle at the end of micturition, whereupon pain is felt. In view of the foregoing statement it is obvious that the diagnosis of papilloma must be made with the cystoscope.

Of the frankly malignant growths of the bladder, those of an epithelial character are vastly in the majority. Connective tissue growths are not common, and when they are seen it is usually in children or young adults. Sarcomata of the bladder walls are so rarely found that we need but refer to them. Fibromata, fibromyomata and myomata, myxomata and dermoid cysts are also extremely rare.

When we recall how almost invariably vesical neoplasms are located in the base of the bladder, it is but natural to seek for some related etiological factor. Touching upon this point, Zuckerkandl offers the interesting suggestion that even under physiological conditions the epithelium of the basal mucosa has a more marked tendency toward proliferation and cystic formation than that of other sections of the viscus. One of the results of long continued inflammation is papillary exuberance, and this is a process very often seen in the trigone, in which region most carcinomatous growths are to be found. I incline to the belief that a sequential relationship exists between chronic, localized cystitis and epithelial growths.

A very curious pathological phenomenon, in regard to this process, has been observed by Stoerk and Zuckerkandl. They found that in cystitis cystica the little cysts were formed by the sealing over of small invaginations of epithelium, or that fusion of minute papillary excrescences ensued. The significant point here is that adeno-carcinomata have taken their origin in these identical spots.

The first token of bladder cancer is hematuria, and particularly significant of malignancy in a middle aged person is a suddenly appearing sharp hemorrhage, quite likely with absence of bladder pain, and continuing several days without abatement in spite of treatment, and then ceasing just as abruptly as it began. Finally after a period of varying length, pain—not tenesmus—becomes a factor. Of course, it must be borne in mind that I am now referring to the pre-inflammatory period. At about this time the patient will give you a history which coincides in the main with the following composite history which I have developed from a number of cases, in various stages, seen by me during the past year.

The patient is fifty-six years old; had gonorrhea several times in early youth, but does not remember that he ever had inflammation of the bladder; been getting up once at night for several years; a year ago he suddenly experienced a rather alarming hematuria, the blood being mixed with the urine, with the last few drops of the stream bright red; hemorrhage persisted for a week and ceased almost as abruptly as it began; for three months urine was entirely free from blood, when suddenly hemorrhage again took place and more profusely; immediate retirement to bed was without influence on hematuria; at times coagula pass; with cessation of hemorrhage small necrotic fragments are seen; patient feels a dull ache of ill defined site.

I can assure you that the foregoing history is so thoroughly characteristic of vesical cancer that a patient giving one of the same type at once should be subjected to a thorough cystoscopic examination. Practically never are these growths palpable suprapubically, but in a large percentage of instances they can be felt per rectum. Introduce six or eight ounces of fluid into the bladder (by the way, these bladders are easily tolerant to fair distension), and with the index

finger reaching up above the prostate, carefully palpate the inter-vesicular area. Often you will be able to detect an area of induration varying in size from that of a twenty-five cent piece up. You may not be able to palpate the entire induration, in fact, sometimes you can get only its edge, but whenever you feel this induration in vesical cancer you can make up your mind that the case is not suitable for excision of the growth. Another symptom I want to lay emphasis on is a dull pain radiating into the rectum, and which is just as noticeable, if not more so, when the patient is lying down as when he is stirring about. In a number of instances patients have referred to this symptom without any solicitation on my part. Peculiarly distinctive features of this pain are its intermittence and independence of the act of micturition. Later, pains will be complained of running along the urethra, at the end of the penis, suprapubically, in the perineum, down the thighs and along the sciatic nerve. And remember that this sciatic pain is also suggestive of carcinoma of the prostate.

The initial characteristics of bladder carcinoma may continue without marked change for as long as two years or even longer, when infection becomes a superadded element, and then the patient's distress grows apace. Up to this time frequency may not be an urgent symptom, but naturally with the onset of a cystitis, it becomes more and more so.

As pointed out in the composite history given, hematuria is the first symptom of vesical carcinoma. It continues for a time, then as suddenly ceases. After a period of either weeks or months it begins again. Again it ceases—but usually this attack has lasted longer. Henceforth, the hematuria recurs at shorter intervals, lasts longer until finally it becomes continuous, at which time the patient's end is within measurable distance.

I want to stop at this point to warn against the introduction of soft instruments into the bladder for irrigating purposes. In a very large percentage of instances infection follows such instrumentation. A further objection to instrumentation is this: The end of the instrument is jabbed and poked about into the carcinomatous mass, irritates it and causes further hemorrhage. Therefore, in these cases keep instruments out of the bladder unless there be marked urgency for their employment.

Whilst carcinomatous growths of the bladder offer certain distinctive signs which point unerringly to the condition, making a fairly reliable diagnosis possible in the majority of instances, yet it is the cystoscopic findings upon which final judgment must be based. The genito-urinary surgeon who has had a large experience and who is expert in interpreting cystoscopic findings, will rarely experience difficulty in making a diagnosis, or in differentiating between malignant and benign growths.

A few vesical cancers are of the papillary, pedunculated variety, closely resembling simple non-infiltrating papilloma, but most malignant neoplasms present a cystoscopic figure which is approximately true to the following type: Seated within or adjacent to the trigone's boundaries, is a broad, flat, sessile mass, ranging in size from that of a quarter to a dollar. The surface of this mass is ulcerating with possibly a necrotic spot standing out in bold relief. Surrounding the cancer is an infiltrating, brawny zone merging through a fringe of inflamed, edematous mucosa into normal bladder wall. As already pointed out the papillary cancer presents stunted, closely cropped villi. The flat ulcerating carcinoma may not cause death for four or five years, but in the case of the rapidly growing papillary growths death takes place under two years and most usually within 15 or 16 months.

In common with other genito-urinary surgeons I have had a disheartening experience with vesical carcinoma. In the large majority of cases the golden opportunity is long past. The single hope in these cases lies in a radical operation. If favorably located, that is, in the upper or high up on the lateral walls, removal of the growth with excision of a wide zone of healthy bladder wall is the procedure of choice. But, as we all know, the typical carcinoma of the bladder occupies a site in the base of the bladder which makes anything but a complete cystectomy futile, and we must admit that there is much doubt as to the wisdom of resorting to complete removal of the bladder. The immediate mortality is shocking, and even with survival a fatal ascending renal infection is practically inevitable. In some early cases with favorable location, I have experienced success, but henceforth I shall depend more and more upon the cautery rather than exci-

sion, for I incline toward the belief that the best chance is thereby afforded. In a number of cases I have stopped a persistent hemorrhage with the high frequency spark, but the disadvantage of this procedure is that the patient hugs the false notion that the checking of the hemorrhage indicates control of the process, and thus he is less willing to listen to the proposal of a more radical step.

The chief purpose of this paper has been to give a survey of present day knowledge of bladder tumors, and to urge that every case of hematuria be closely inquired into and examined instrumentally, so that an opportunity for early treatment of bladder growths be possible in all instances.

3700 Morgan street.

MADLUNG'S DEFORMITY OF WRIST.*

WM. R. PARKES, M. D.,
Surgeon to the Evanston Hospital.
EVANSTON, ILL.

When I decided to report to this society a case of Madlung's deformity I was under the impression that there were records of very few cases to date. On looking into the literature I find up to 1909 some 65 cases had been reported and 17 cases during the last five years. The case I have to show you is the only one I have any recollection of having seen. Knowing so little about the malady I have taken occasion to investigate the subject and beg your indulgence in a brief description.

Madlung's deformity is the name given to a progressive curvature of the radius, the disease having been first described by Madlung in 1878. There is no definite agreement as to its etiology or pathology. Madlung summarized the situation as follows: "The condition is a form of disturbance of growth in the wrist joint, analogous to pes valgum, genu valgum and scoliosis. The deformity develops spontaneously, with pain and limitation of mobility of the wrist. Flexion may be increased but extension is usually greatly restricted. Restriction of adduction and abduction is less marked. Patients generally belong to the working class, but the deformity can scarcely be called an occupational disease. It usually reaches

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its height in one to two years. The main factors in the formation of the deformity are, first, the action of the flexor muscles which are more powerful than the extensors, and which tend to stretch the extensor tendons and ligaments of the wrist, thus exerting a forward bowing of the radius; second, pressure of the carpus on the anterior edge of the lower extremity of the radius which causes atrophy, while release of pressure from the posterior edge permits of hypertrophy of that part.

Jagot in 1897, on investigating the malady with the x-ray, showed the curvature of the radius and the hypertrophy of the lower end of the backward dislocated ulna.

Delbert, 1899, concluded that the disease is an irregular development of the epiphyseal cartilage similar to the cartilaginous exostoses of genu valgum, and is most probably caused by a late rickets in connection with the predominating action of the flexors.

Pathology.—Stetten, in *Surgery, Gynecology and Obstetrics*, 1909, reported one of the two cases on record of the backward variety. He has probably made the most exhaustive study of the malady in this country. He cites 64 comparatively authentic cases on record up to 1909. With these as a basis, he summarized the pathology, concluding about as follows:

The disease is essentially of the osseous system and involves three distinct parts of the skeleton, viz.: 1st, the radius; 2d, the ulna, and 3rd, the wrist and hand. 1. The radius is the chief bone involved, the disease consisting primarily in a deviation of the inferior articular surface forward or backward. The change in direction varies in degree from normal to 180 degrees and involves a bowing of the radius, the curve being for the most part in the lower third and chiefly in the anteroposterior plane. Some of the cases show a lateral bowing as well. In 62 of the 64 cases the curvature was forward and in only two was it of the backward variety. Shortening of the radius was frequently noted and usually accounted for by the curvature. The articular surface may show hypertrophy of the dorsal and atrophy of the anterior edge in the forward cases, and vice versa in the backward cases.

2. The ulna plays a more passive role in the deformity. Often there is hyperostosis of the head and usually displacement backward or forward. The whole bone is generally as long or longer than normal.

3. The first row of carpal bones, instead of forming the usual arch, is arranged like a wedge, the semilunar bone forming the apex of the wedge. The

ligament about the head of the ulna is much relaxed, allowing considerable mobility of the bone.

Etiology.—As the deformity appears seven times as frequently in females as in males it is quite evident that for some reason females are much more prone to the disease than males. Youth also seems to be a predisposing cause as all cases reported were between the ages of 8 and 18, 13 being the average age. One third of the cases show a hereditary predisposition. Neither inflammation, general physical condition, traumatism nor occupation seem to play any part in the etiology.

No satisfactory explanation has been advanced for the irregular ossification of the epiphysis and diaphysis, which with the pulling of the stronger flexor tendons allows the bending of the radius.

Symptoms.—The disease develops spontaneously and progresses gradually. First, there is pain in wrist joint, more or less severe—which is increased on motion of wrist. The pain ceases when the deformity becomes most pronounced. It takes two to three years for the deformity to reach its height. When this has become stationary the main symptoms are fatigue and weakness of wrist together with limitation of motion. There is restricted motion opposite to the direction of curvature and increased motion in the direction of the curvature.

The displaced ulna can be depressed into position but goes back on release of pressure. The radial deformity is irreducible.

The disease may be confounded with:

1. Simple traumatic dislocation.
2. Congenital anomalies.
3. Deformity after hysterical contracture.
4. Pathological dislocation.
5. Rickets.
6. Arrest of development after fracture at epiphysal joint.
7. Deformity after fracture of radius with dislocation of ulna.

However, a careful study of the symptoms, history and radiographs will distinguish it from all of these affections.

Prognosis and Treatment.—The disease seems to be self limited, reaching the limit of its progress in from 2 to 3 years. The deformity becomes stationary at this time and is only relieved by surgical measures. Orthopedic manipulation and appliances seem to have no curative effect

whatever. Tenotomy is not a rational treatment nor is resection of head of ulna. Linear or cuneiform section of the radius at the point of greatest curvature seems to be the best means of correcting the deformity. This should be deferred



Fig. 1. Madelung's Deformity.

until the bone ceases to undergo further curvature and the attending pain stops.

Case 1. The case I have to show you is that of a girl, aged 15 years. Family history: Mother living and quite well; father died of pulmonary tuberculosis, one sister has tubercular hip, brother has corneal ulcer, second sister well.

Previous history: Normal birth; breast fed usual length of time; walked at one year of age; no history of rickets; has been quite nervous since accidental burn several years ago.

Present illness began August, 1912, when right wrist and forearm began to ache after using them as in writing. Then noticed some deformity at wrist. This, with the tenderness of joint and pain on motion, increased until time of admission to hospital,



Fig. 2. Three Months After Osteotomy—Bone Plate in Situ.

July 13, 1913. Limitation of motion was first noticed in January, 1913, 6 months after beginning of symptoms. In July, 1913, extension of hand on wrist quite impossible. Flexion was more marked than normal. The lower end of ulna was seen to project abnormally

posteriorly. There was some adduction of the hand. X-ray showed an abnormal curvature of lower end of radius and also an angulation of the first row of carpal bones. Dr. John Ridlon made the diagnosis of Madelung's deformity and advised section of the radius.

This operation was done July 16, 1913; a cuneiform section of bone was removed from the radius at the point of greatest angularity. This allowed the radius to be straightened. As there was a tendency at the time of the osteotomy for the fragments to spring back into the line of the old curve, a small vanadium steel plate was applied. This served to hold the fragments in a straight line. Union took place without any signs of disturbance other than tenderness over the plate lasting for several months. On this account the plate was removed 6 months later, having served its purpose of holding the fragments in line until union had taken place.

The patient has had much better use of the hand since the operation. Extension is much



Fig 3. Osteotomy—Bone Plate Removed.

more normal and she is quite free from pain in the wrist. The x-ray prints I show you will give you a good idea of the deformity of the radius before operation, the appearance of the plate in situ and the degree of correction of the deformity since operation and removal of plate. You will observe that the left arm is also deformed, but to a less degree. Operation was not advised for the left side as there is no pain and the deformity is not great enough to warrant it.

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SOME PRACTICAL POINTS IN THE TREATMENT OF TRAUMATIC JOINT AFFECTIONS BY MASSAGE AND MOBILIZATION.*

HUGO AD. OLDENBORG,
CHICAGO.

Judging from conversation with physicians about the subject of traumatic affections of joints as well as from the surgical literature, I have been impressed with the fact that some peculiar ideas seem to prevail as to the usefulness of massage, the effects of the same as well as the character of its application in this class of cases. The work of Championnière and his assistant, Dagron, might be looked upon as an epoch in the development of this treatment, particularly what concerns the mode of application. Their cardinal points are that the manipulations should be given in the direction of the pertaining muscle fibers and the return circulation and also that it should be done in such a manner as to not cause pain. The latter point (that of not causing pain) being insisted upon so much as to make it a criterion for the proper technique. If that rule is followed, one produces a very striking analgesic effect. How that is brought about, nobody seems to be able to explain. The massage has some influence on the peripheral nerve endings, producing this effect perhaps by reflex. One knows that massage tends to prevent the atrophy in the pertaining muscles which follows the joint trauma and also that the same effect is produced by cutting the posterior nerve roots in the cord. Anyway, if one knows the technique one need not be afraid of using the application of massage early on account of the affected region being tender and sore, because, as said before, one can generally stop the pain and consequently give the patient relief.

Another point, the muscle spasm, that mostly comes with the trauma and no doubt also is a reflex from the injury to the peripheral nerve endings, can also be stopped by the manipulations and thus another causative factor to the pain be overcome.

When considering the question of the effusion in the joint, clinical experience has demonstrated that the early application of massage promotes the resorption. I make this statement in spite

of the fact that the general opinion amongst surgeons seems to be that a traumatic synovitis should not be touched for at least a week or two. I have never been able to find any other explanation than that the synovial membrane is looked upon as very dangerous ground, particularly prone to bacterial invasion, and for this reason, perhaps, should be left at rest. The influence of the early massage in these cases was easily explained by former ideas about the histology of the joint cavity, the joints being classed as serous cavities like the pleura or the peritoneum, lined with endothelial cells with a number of openings or stomata of lymph vessels in between these, so that the joints could be looked upon as lakes in the rivers of the lymphatics. Now, however, further histological studies¹ have changed this theory. The synovial lining or intima has been found to be composed of connective tissue cells bedded in a separate stroma. These connective tissue cells are intimately connected with a deeper layer also composed of connective tissue, this latter being more porous and containing blood and lymph vessels. Between these vessels are found numerous anastomosing cells resembling the connective tissue cells and in the spaces between these is found a vessel system whose relation to the blood and lymph vessels resembles that found in the diaphragm.

A number of experiments² have been made to demonstrate the power of absorption of the synovial membrane and also the influence of massage in such cases. One of those experiments was to inject a rabbit's two knees with a certain quantity of India ink and then give massage on one side but not on the other. After the massage particles of ink were found in the inter-muscular lymph vessels above the knee and also some in the lymph glands of the groin, but very little of the coloring matter had gotten outside of the joint on the non-manipulated side. A striking feature of the experiment, however, was that the lymph vessels of the synovial membrane had no coloring material in them. If there be an inflammation, however, whether produced by trauma or other causes, the synovial membrane seems to change in character so as to lessen its power of absorption. There is also a change in the character of the fluid in the joint. This be-

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¹Hildebrand, Arch. für Klin. Chir., 1906; p. 412.

²V. Mosengeil, Sturm and Gallis.

comes more fibrinous in nature, forming clumps, which most likely act as foreign bodies or irritants which keeps up the congestion and with that the effusion in the joint. The explanation of the effects of the massage may consequently be, that if we can get in our massage before the pathological changes of the synovial membrane have taken place we will perhaps help to prevent such changes as well as promote the resorption.

SOME CASES TO ILLUSTRATE.

Case 1. Some years ago when walking on a slippery pavement I fell, striking on the knee just outside of the patella. I felt some pain, not more severe, however, than that I was able to continue my walk after I got up. I went about my business for two hours more (the accident happened about 8 o'clock in the evening), feeling now and then that the knee was a little sore, but not more than that I expected it to be all gone by the next day. On waking up the next morning, however, I found I had a greatly swollen knee—no noticeable swelling in the evening. The difference in circumference being over 3 centimeters. I immediately sent for someone to give me massage, which treatment was continued daily until recovered. I remained in a horizontal position the first day. The next day I was in my office on crutches. On the ninth day I was fully restored and the restoration can no doubt be called complete, because I am not certain today which knee was injured.

Case 2. About 10 years ago I was sent by Dr. H. B. Favill to a man aged 38 years, weighing about 150 pounds. When out in the country with his family on a picnic ten days previously his 12-year-old boy had dared him to jump as far as he in a standing long jump. The result of one of his attempts was that he fell and hurt his knee and had great difficulty in getting back to town. Dr. Favill, who found quite an effusion in his joint, put him to bed and after 10 days sent me out to give him massage. The knee was then somewhat smaller in circumference than it had been, but the effusion was not fully gone. The daily massage brought about some improvement, but very slowly. After three weeks of treatment it did not seem that I could get any more effect. He was now able to walk about with the aid of a cane, but felt weak in his leg and insecure. At my suggestion he started, when out of doors, to try to run on his toes in a slow dog trot, only about 100 feet to begin with, but repeated several times a day, and gradually increase until he could run a block or two. That seemed to help the improvement and after two more weeks he had entirely recovered. The idea with the running on the toes was to produce vigorous activity of the quadriceps without getting the severe jar to the synovial membrane produced by stepping on the whole foot.

I have no doubt that if the trauma is severe enough to cause the joint cavity to be filled up with blood,

the best policy is nowadays with the improved surgical technique and consequent insignificant risk to aspirate the blood, wash out the joint and seal up the wound before the massage is begun. But the early massage is of greatest importance for the restoration. After the synovitis has been in existence for a certain length of time without any treatment, it seems to baffle all attempts of massage and, for that matter, any sort of treatment to bring about full restoration.

Case 3. Some years ago I was sent by Dr. F. L. B. Jenney to Mr. C. D., aged 35, weighing about 175 pounds, for a severe ankle sprain. He was in bed when I saw him the first time, but after 11 days, having had daily treatment by massage and mobilization, he was able to get about on crutches. When the treatment was stopped on the 17th day he was very pleased because he could walk with only a slight limp.

Case 4. The satisfaction of the previous patient, I suppose, was the reason that Dr. Jenney, a short time afterwards, again asked me to see a man who had an office in the same building where he was. This was about 10 o'clock in the forenoon. The patient was a tall man of 33, weighing about 225 pounds. Coming into town on the train two hours previously, he had sprained his ankle walking out of the station and was suffering from a good deal of pain. I was able to give him some relief by my massage. He told me he was going home in a short while in a cab, and wondered if it would be any risk for him to walk carefully with a cane out to the elevator and from the elevator out to the cab, and again from the cab up the stairs to his house and to his bedroom. I thought there would not be much danger if he was careful. I saw him the same evening at his house, finding his leg very swollen and more painful, and I could only partially relieve his suffering by massage. When I came back the next day the patient was dissatisfied because I had not helped him and discharged me.

These two cases were both severe ankle sprains, the one was kept off his feet long enough to allow the first part of the healing to take place aided by massage, and then, first with crutches, gradually permitted to put more and more weight on his foot. They were both heavy men, but because of the precaution of not letting the first one put his weight on his foot which naturally would cause further tearing of the already lacerated tissues, the recovery was prompt and uneventful. In the second case I did not sufficiently consider the danger of allowing the patient to put a 225-pound weight on his injured ankle. The result was, no doubt, further tearing of the tissues, as well as more extravasation resulting for me in the loss of a job and for the patient in

a delay of possibly several weeks in getting restored.

When dealing with traumas in the upper extremities, including even most of the simpler forms of fractures, one can very soon allow active function to begin, taking the precaution of letting the patient do only such movements as will not cause him any pain. With the aid of massage together with passive and active movements one sometimes is astonished at the short time it takes for recovery. With the lower extremities, however, when function means the carrying of bodily weight, more strain is put upon ligaments and injured tissues. One can give active work to all the muscles of the leg and foot, when the patient is in bed or sitting in a chair, and thus get the benefit of exercises, the prevention of atrophy of the muscles as well as the limitation of the formation of adhesions. When the patients get on crutches they can either hold their foot entirely up in the air or begin to somewhat touch the ground with their toe at each step and then by degrees put more and more weight on it without doing any further injury to the traumatized region. When one considers the pathological condition one can easily understand the reason why.

Everybody knows the risk of adhesions following trauma to a joint. Because of the above mentioned analgesic effect of the massage, as well as through its effect of overcoming the spasm of the muscles in the traumatized region, passive and even active movements can be begun much sooner than under the treatment by immobilization, and in that way the chance of getting adhesions in the joint as a result of the injury is lessened. Furthermore, the forceful breaking up of adhesions, whether under anesthesia or not, always gives the patient a good deal of shock and if not done with great judgment and care may sometimes cause harm. As an example of the shock to the nervous system caused by the forceful breaking up of adhesions I will report another case.

Case 5. A short time ago a young woman student at the University of Chicago was sent to me by Dr. Josephine Young. Three months previously she had had a backward dislocation in the right elbow of both bones of the forearm. The accident happened in her home town in another state. The dislocation was reduced and put up in a supporting bandage for three weeks. When this was taken off, she went to her surgeons

every four days to have her elbow mobilized. This mobilization was done without any anesthesia and consisted in her arm being flexed as far as possible, retained in the flexed position by a bandage for a few minutes and then the bandage removed and arm stretched to almost full extension. After the operation the arm was put in a sling and the patient was told to come back in four days. The effect of this mobilization was that during the first 24 hours she suffered most excruciating pain, which prevented all sleep. During the following three days the pain gradually subsided, so that by the fourth it was practically gone. The treatment was kept up in that way for a few weeks. Afterwards it was given every day. When after two months her elbow still was very stiff and she found herself in a highly nervous state she finally rebelled. When I saw her, about three months after the accident, she hardly could talk about herself without having a crying spell. She had developed a spastic tic of some muscles in the face and had about 60 per cent normal flexion in the elbow, pronation and supination being good. She has improved a good deal in her elbow from the massage, having gained about 25 per cent in motion, but it is still quite weak and any effort involving the joint will bring the pain back again and with that lessen movability. I am quite convinced that early massage would have brought about a better result in shorter time and certainly with less shock to the nervous system of the patient.

I would like to call attention to another point, namely, that a special technique is required in order to get the best effect from the massage in this class of cases. While no doubt any kind of gentle rubbing in most cases might be beneficial, it is, however, the form of application developed by Championnière and his assistants that in the direction of the muscle fibers and the return circulation which produces the best results.

It is quite natural that the person who devotes his time exclusively to one class of work may gradually become impressed with the importance of that particular field of endeavor and also possibly be inclined to underestimate the value of work done along other lines. I doubt, however, if mechanical forms of treatment, especially in this class of cases, are receiving the amount of attention of the profession that they really deserve. We all aim to accomplish the same, getting the patients well in the shortest possible time, and with the least amount of suffering. I believe that aim could easier be attained by better cooperation between the physicians and the massage operators, and I also hold that if more attention was given to these matters in the medical schools, resulting in a greater number of phy-

sicians devoting their time to this class of work, it would be of benefit to both the profession and the public.

122 South Michigan avenue.

X-RAY AID IN THE DIAGNOSIS OF STOMACH AND COLON CONDITIONS.*

NELSON H. LOWRY, M. D.,
CHICAGO.

Among the various laboratory aids that make the diagnosis of stomach and intestinal conditions a pleasurable task as well as a scientifically accurate procedure, perhaps there is nothing of recent development so interesting and helpful as an intelligent use of Roentgen rays.

It is beyond the scope of this discussion to consider in detail the various problems in Roentgenological research that are being so carefully worked out at the present time. Let us be content to take up the more common and trustworthy elements of the modern routine x-ray examination of the gastro-intestinal tract.

Before doing this, a few anatomical and physiological considerations modified by the light of Roentgenology may be helpful.

While swallowing the bismuth meal, the esophagus is seen to be a collapsible tube down which the bolus of food shoots to the stomach in about one-tenth of a second.

The stomach varies in size and shape all the way from the hypertonic type resembling a cow-horn to the atonic type looking much like a boxing glove. The cardia capped by the air dome, the lesser curvature, the greater curvature and the pars pylorica are all clearly seen. As the food enters the stomach, it is seen to settle to the most dependent portion and as the stomach fills, gentle superficial peristaltic waves commence in the region of the cardia. These progress toward the pylorus where they become quite deep and pronounced. Soon the duodenal cap is seen to fill just above and slightly to the right of the pylorus. The normal stomach should empty itself in about three hours, while the hypertonic type may empty itself as soon as two hours; the atonic type in from five to six hours and when a high degree of obstruction at the pylorus is present, in from six to eight hours. As the

bismuth meal leaves the duodenal cap, it is taken up by the rapid back and forth whipping motion of the small intestine and can be seen only as flaky masses throughout the abdomen and is not of interest to our observations until it reaches the terminal ileum and begins to fill up the cecum. This occurs, normally, in from five to six hours.

The location and contour of the cecum can now be studied and the vermiform appendix which upon manipulation with the hand or the wooden spoon can be seen in about one-fourth of the cases. The bismuth meal reaches the transverse colon in from ten to twelve hours, the descending colon in about eighteen hours and comes to rest in the ampulla recti in about twenty-four hours.

Upon manipulation the colon is found to be quite movable in its entire extent, and varies greatly in shape in different subjects. The flexures are usually capped with gas, the right lower than the left. The transverse colon follows the greater curvature of the stomach and the folds and loops of the sigmoid vary greatly.

Having thus briefly considered the normal findings, let us now consider the abnormal and how recognized.

Concerning the stomach: We speak of atonic dilatation when the food drops down below the umbilicus and the stomach is seen to be a large oval bag not maintaining its columnar shape against the weight of its contents. In gastrop-tosis the stomach cavity is not usually so large, but the entire organ, including the lesser curvature, is below the umbilicus. In both conditions the peristaltic waves are diminished except where pyloric obstruction is present. The food remains in the stomach from five to six hours.

In carcinoma the findings are of great interest. When this condition is advanced there is defective filling. The normal outline of the stomach is seen to be encroached upon by the growth. The stomach is usually the exaggerated cow-horn or hook form shape. So typical is the appearance of the stomach in most of these advanced cases that a few glances with the fluoroscope establishes the diagnosis as positively as an exploratory laparotomy.

In the very early cases, however, more difficulty is encountered and it is here especially that the Roentgenologist should follow the rule that all laboratory workers must follow, not to allow

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himself in a moment of enthusiasm to be led to a positive conclusion by evidence that is not positive.

A small rest of bismuth in the stomach, six hours after the meal, with the remaining bismuth in the transverse colon or the splenic flexure together with an absence of hydrochloric acid with no change in the shape of the stomach is very strong evidence of an early operable carcinoma. This simple method is being used by many x-ray workers and is doing much to establish a diagnosis while there is yet time for surgical treatment.

A convenient method of determining the absence of hydrochloric acid when the stomach tube is undesirable is by having the patient swallow with the meal a fibro-dermoid capsule containing twenty grains of bismuth subcarbonate with a little pepsin. If the capsule remains unopened after six hours, hydrochloric acid is absent.

When a high degree of pyloric obstruction is present, the waves are seen to be greatly exaggerated in spite of which the stomach does not empty itself in the normal time.

Let us now consider ulcer of the stomach. Here there is one class easily and positively diagnosable to which belongs the callous ulcer, usually situated on the lesser curvature and appearing as a niche in its smooth outline. The other ulcer of this class is the penetrating ulcer appearing as a separate sack capped by its own air dome.

To the other class of more difficultly diagnosed ulcers, belong the numerous superficial erosions and ulcerations situated usually on the greater curvature or pars pylorica. They do not appear on first observation as breaks in the stomach outline, but can only be seen as bismuth rests some hours after the stomach has emptied itself. These bismuth rests associated with a sensitive pressure point which moves with the stomach accompanied by a tendency to muscular contraction of the stomach wall at their site are strong evidence of the existence of ulcers of this last class.

In duodenal ulceration, the first portion, which normally fills in a well defined cap formation, fails to fill or appears as a thin ragged outline. This can be seen nicely with the fluoroscope or a series of radiographs. The point of tenderness

corresponds to the visible location of the duodenum.

Let us next consider that group of pathological conditions more baffling even to the clinician than those of the stomach region. I refer to those interesting conditions clustering about the region of the terminal ileum and the first portion of the colon.

Let us first speak of ileac stasis quite commonly met with and so much talked of at present. It is recognized by a backing up of the bismuth meal in the terminal ileum, giving a distended appearance and a delay in filling with the cecum which normally occurs in about five hours. "Lane's Kink" is credited to be a common course of ileac stasis and can usually be seen if present when studying the ileac outline. Over-distention of the cecum as well as misplacements, contractions, and distortions due to adhesions are plainly evident when present. The appendix is found to fill in about one-fourth of the cases and much concerning its size, shape and location can be determined. Palpation with the wooden spoon under the fluoroscope in the horizontal position is often required to bring it to view. One of the chief diagnostic points concerning the appendix is failure of drainage. We have observed the appendix to remain filled and visible as long as eight days when the rest of the intestinal tract was clear of bismuth in twenty-four hours.

James T. Case has observed the bismuth shadow of the appendix after twenty days and A. Howard Pirie after forty-three days.

In chronic appendicitis with adhesions then, the clinician may look to x-ray aid with confidence. Even in appendicitis obliterans, where the appendix does not fill with bismuth, the accompanying adhesions so distort the normal cecal picture that a diagnosis can usually be made.

Abdominal tumors may bring pressure upon the colon, causing a misplacement or a partial obstruction. Also new growths of the colon proper, such as annular carcinoma, will cause a narrowing of the lumen and an obstruction to the passage of the bismuth meal.

To gain a view of the entire colon at one time, we use an enema containing barium sulphate administered by the low gravity method. The colon from cecum to ampulla shows up

nicely and prolapsus of the transverse colon, misplacement of the flexures, distortions due to abdominal or pelvic adhesions, obstructions due to new growths or adhesions, and abnormalities,

fore entering upon radical treatment, either surgical or medical.

A few clinical cases briefly stated may be of interest.

Case 1. Mrs. O., aged sixty-six years; thin, emaciated, and cachectic in appearance, tongue coated, low gastric acidity, weak and excitable. Has been sick five years, during which time has had three acute abdominal attacks, described as indigestion and followed by soreness low down in right side. Poor appetite and much gas formation; complains of back-ache between shoulders, pain in region of bladder with frequent micturition and indigestion. No point of tenderness to be found. Has had many diagnoses, such as stone in the kidney, neurasthenia, etc.

X-ray examination of urinary system negative; of gall bladder negative; stomach appears normal and the duodenal cap well defined. The cecum fills in five and one-half hours and appears narrowed and constricted by adhesions; appendix shows large and adherent at tip, retains bismuth three days. Diagnosis:



Fig. 1. Case 1.—Mrs. O. Stomach normal. Duodenal cap to right fills normally. Bismuth meal 6 hours before. Seen in small intestine as flaky masses and filling up cecum to right. Cecum harrowed and irregular by adhesions with elongated appendix adherent at tip. Confirmed by operation.

such as extra loops, can all be carefully studied.

In cases of obstinate constipation, the bismuth meal should be studied in its passage through the colon. The point of delay together with a study of the colon outline will in many cases explain the cause of an obscure and obstinate constipation.

That many persons complaining of gastric symptoms alone and sent in for stomach examination, are found to possess only cecum or colon pathology and vice versa has been a frequent observation in our x-ray studies. This significant fact, together with a firm belief that the Roentgenological findings are a very important part of the clinical evidence in every abdominal case, compels us to recommend to the surgeon and practitioner the routine use of this method of examination in all cases and especially be-



Fig. 2. Case 2.—Mrs. L. Shows cardia narrowed (upper left), pars media almost obliterated, leaving only a thin line of bismuth. Small stomach cavity in region of pylorus. Pylorus open, bismuth passes out quickly, as seen in lower abdomen. Advanced carcinoma. Confirmed by autopsy four months later.

Chronic appendicitis with adhesions. Confirmed by operation and recovery of health.

Case 2. Mrs. L., aged forty-six years; thin, emaciated and cachectic in appearance, tongue thickly coated,

in right side at McBurney's point. Tenderness and slight rigidity at this point. Aching pain in small of back.

Diagnosed as catarrhal appendicitis and sent in from the country for operation.

X-ray examination shows large atonic stomach, very slow in emptying; some of bismuth meal at greater curvature after six hours. Tenderness and rigidity at McBurney's point, seen to be the pylorus. Ileocecal region appears normal and no tenderness.

Diagnosis: Atonic dilatation of stomach. Complete recovery after three months medical and hygienic treatment.

Case 4. Mr. B., aged thirty-two years; thin, nervous, slightly anemic, gastric acidity high. Says he has had dyspepsia for years. Complains of a dull grinding pain in the epigastrium. Tenderness in epigastrium, especially to the right of median line. The pain sometimes comes immediately after eating, but usually from one-half to two hours, sometimes relieved by eating a little. Always feels hungry but afraid to eat because of the pain.

X-ray examination shows a very large stomach with excessive peristalsis. Duodenal cap does not fill. Only a thin ragged line of bismuth can be seen after ten minutes; stomach retains bismuth six and one-half hours.

Diagnosis: Duodenal ulceration with stenosis and secondary enlargement of the stomach.

Case 5. Mr. —, aged fifty-two years. General appearance healthy, except for scoliosis from child-



Fig. 3. Case 4.—Mr. B. Stomach large with excessive peristalsis. Pyloric antrum seen with lack of duodenal cap above—only a thin ragged line showing. Duodenal ulceration with moderate obstruction.

no hydrochloric acid. Has been sick two years, seriously ill for six months. Clinical symptoms seem stationary. No appetite, difficulty in eating solids, must take liquids slowly or regurgitation by mouthfuls; no tumor palpable; tenderness over gall bladder region. Exploratory operation desired, but the surgeon insisted on a preliminary x-ray examination.

X-ray examination shows delay in filling of stomach, small accumulation of bismuth in region of cardia, which trickles down slowly to small stomach cavity in region of pylorus.

Obvious diagnosis: Advanced diffuse carcinoma of stomach, obliterating its cavity.

The surgeon declined to operate and we were permitted to be present at the post mortem three months later when the carcinomatous growth obliterating the stomach cavity was found to correspond with the radiograph.

Case 3. Miss H., aged twenty-four years; general appearance fair. Had typhoid eight months ago; light case, no complications. Two months after recovery while working hard began to have indigestion, which has increased to the present time. Had gas formation, no appetite, coated tongue. Dull dragging pain



Fig. 4. Case 7.—Mrs. B. Terminal ileum distended as seen in center of abdomen. Pouch of cecum at left. Ascending colon and descending colon almost obliterated by adhesions. Confirmed by operation.

hood. Has had stomach trouble for years, which has been worse the last year. Has felt his strength failing the past two months, during which time has lost fifteen pounds. Two of his immediate family have died of cancer.

The bismuth meal is seen to be delayed at the cardia, then passes slowly through a narrowed fundus to the pylorus. The smooth outline of the fundus is seen to be encroached upon, causing a ragged appearance.

Diagnosis: Diffuse carcinoma.

Case 6. Mr. ———, aged fifty years. He had painful attacks in upper abdomen for several years. For two months pain has been constant, with lack of appetite, gas formation and occasional vomiting. Recently there has been slight jaundice. Sent in from the country to be operated on for gall-stones.

X-ray of gall bladder shows stones present. X-ray of stomach shows large relaxed stomach with lack of peristaltic waves. After eighteen hours, a large bismuth rest is seen near the pylorus. Acidity is found to be low.

An opinion of carcinoma was given. The patient was not operated on, but a distinctly palpable tumor has appeared at the location of the bismuth rest and the other clinical symptoms have become more characteristic.

Case 7. Mrs. B., aged twenty-six years. Appears well nourished, slightly anemic. Had peritonitis, cause unknown, eight years ago. Since that time much troubled by constipation. For three years has had acute abdominal attacks, characterized by severe pain and gas formation; sometimes accompanied by stomach disturbance and usually relieved in a few days by physics and enemata. Attacks have been more frequent of late and has had constant trouble for three weeks.

X-ray examination of the stomach revealed normal findings. The time of filling of the cecum was longer than normal, six and one-half hours, and the terminal ileum is seen distended for several inches, denoting ileac-stasis. An enema was then given to show the entire colon. A portion of the ascending colon and descending portion of the splenic flexure were found to be distorted and narrowed and an opinion of abdominal adhesions at these locations was given.

At operation, dense fibrous adhesions were found at the locations designated. The appendix shows signs of previous inflammation and there was a slight kinking of the terminal ileum.

25 East Washington St.

EXPERIMENTAL AND CLINICAL WORK ON STERILITY.*

V. D. LESPINASSE, M. D.,
CHICAGO, ILL.

Sterility or barrenness is a condition that has been known for ages. The cause of the sterility

has usually been considered as being in the female as long as the male member of the family could perform satisfactory coitus. It has only been relatively recently that a more careful study of sterile couples has disclosed the fact that about 25 per cent. of the men of sterile couples have no spermatozoa in the semen at all and consequently are absolutely unable to impregnate their wives. These more careful and technically efficient examinations have further shown that many of these men have spermatozoa but these sperms are deficient in vitality, in motility or in some of the essential structures, such as the chromatin or centrosomes. Further studies along these lines are required before any very definite data will be available.

Ivanoff's experiments have shown that sperm taken from any portion of the vas or epididymis are developed sufficiently to produce normal pregnancy and normal young. Spermatozoa taken from the testicle have never produced pregnancy.

At a temperature around 60-75 F. sperm in the condom will remain actively motile for four to six hours, then they will gradually begin to move less and less rapidly and an increasing number will be seen motionless. In 12 to 16 hours all of the spermatozoa will be motionless.

Spermatozoa will live only a very short time in the normal vagina. Most of the sperms are motionless in 15 minutes to one hour, but occasionally they are found actively motile as long as three hours after coitus.

In the cervix the spermatozoa live and retain their motility for hours, and they have been found alive in the cervical secretions for as long as five days. In the fundus and fallopian tube live spermatozoa have been found eight days after coitus.

The spermatozoa are free cells and as such are markedly influenced by their environment and the chemical and enzymotic properties of the media into which they are thrown. Purulent discharges contain strong proteolytic enzymes capable of killing and in many instances dissolving the spermatozoa. It has been shown experimentally that spermatozoa, after coitus, penetrate into the abdominal cavity in large numbers. From here they are absorbed by the leucocytes, producing lytic bodies in the serum of the woman for spermatozoa and consequently rendering her sterile.

*Read before the Chicago Medical Society, March 10, 1915.

It is also possible, but as yet unproven experimentally, that the secretions of certain women are normally agglutinative and hence destructive to the spermatozoa of one individual and not to another, thus accounting for those cases of sterility where both individuals have children by subsequent marriages.

A recent test for paternity has been based on this formation of anti-bodies to spermatozoa. By it for medico-legal or other purposes the father of any particular babe may be determined. The test depends upon the fact that the mother and babe are sensitized to the sera or sperm of the male individual who produced the pregnancy.

Radium.—Sperm exposed to radium for a few minutes will impregnate and produce deformed individuals, but if the radium exposure is prolonged to an hour or so impregnation takes place and no monsters are formed, but the offspring have none of the characteristics of their father. The chromatin of the spermatozoa has been destroyed and we have practically a parthenogenetic impregnation.

Loeb produced parthenogenetic individuals from the ova of sea-urchins, and he tried to reverse the problem and produce individuals from the spermatozoa alone without the assistance of any ova. He was able to develop the spermatozoa into a nucleus and then it invariably died.

Cole has shown by a series of very interesting experiments that sperm from alcoholized and leaded individuals are profoundly altered.

If an alcoholized male and a normal male are allowed to serve a normal female practically simultaneously, all the offspring will be from the normal male. If two normal males are used, the offspring will be practically half from one and half from the other. If the alcoholized male is used alone, he will beget offspring alone, but none when his sperm are mixed with the sperm from a normal animal. The same experiment, only using a normal male and a leaded male, shows an equal number of offspring from each, but a large percentage of those from the leaded male die during the first few days of life.

Diagnosis.—The diagnosis of a case of sterility is not a particularly easy or simple matter. The first step should be the obtaining of a specimen of semen in a condom. If this specimen shows no spermatozoa, we ask for another, and if the

second one shows no sperms, we can feel sure that the pathology is in the man.

If the condom specimen contains spermatozoa we note their motility, the size of the head, the length of tail, the curve in the tail when the sperms cease motion and the length of time the motility persists. Next the wife should have a routine gynecological examination. Then if the conditions are normal a sound should be passed into the uterus. The reaction of the cervical secretions should now be determined and some cervical secretion obtained. Some blood serum from the woman should be obtained. The cervical secretions are mixed with the spermatozoa of the husband and examined by a hanging drop to see what effect, if any, they have on the motility of the sperm. The blood serum of the wife is now mixed with the husband's sperm and examined under the hanging drop. Next the wife is told to report at the office at varying periods from one to ten hours after coitus and the vagina and cervix secretions are examined for spermatozoa. If the sperms are all dead in the cervix one to two hours after coitus, we know that the secretions of the fundus or cervix are destructive to spermatozoa. If the spermatozoa are still alive and moving vigorously five to six hours after coitus, we know the spermatozoa are all right and the cervical and uterine secretions are all right, hence the pathology must be in the tubes or ovaries.

If the spermatozoa cease motion in an hour or so after being mixed with the cervical secretions, we know the secretions are hostile and we should mix the semen with an anti-enzymotic sera and do an artificial insemination.

If the fresh sera of the woman causes the sperm to cease motion in a short time, an appropriate anti-sera should be prepared and mixed with the semen and an artificial insemination performed.

Treatment.—The obstructive cases are curable only by operation. Diagnosis of the site of obstruction is not possible until the scrotum is opened and the vas exposed and opened. Injection of the central end of the vas with a colored salt solution will establish the patency or non-patency of the tube from the point of incision through into the urethra. Aspiration of the distal end of the vas will establish the patency of the epididymis and the vas down to the point

of incision. The treatment depends upon the location of the obstruction.

1. If the obstruction is in the tail or lower part of the body of the epididymis, we should perform the operation of vasoe epididymostomy.

2. If the obstruction is in the scrotal portion of the vas, cut out the obstruction and join the severed ends of the vas.

3. If the obstruction is in the pelvic portion of the vas, perform the Lescpinasse sac operation.

4. If the obstruction is in the ejaculatory duct, catheterize the duct if possible, and if this fails perform the sac operation.

Frequently the spermatozoa found in these closed testicles are dead, though normally formed. After the testicle is opened and all the old sperms are removed, the new-formed sperms gradually develop more and more motility. Hence do not expect a pregnancy for six months at least.

CONCLUSIONS.

Demonstrable defects in the male are responsible for about 25 per cent of all sterility, most of which are curable by properly performed operations. Destructive enzymes in the slight discharges that many practically well women have are responsible for many cases of sterility. Lytic anti-bodies may be present in the blood of many women. By appropriate anti-sera and anti-enzyme measures many of these cases can be cured.

EUGENICS AND THE PHYSICIAN.*

M. D. HENDERSON, M. D.,
OPDYKE, ILL.

Mr. President and Fellow Physicians: I am glad to have a part in the program this evening. We, as physicians, have a broad and useful field of labor and I am mindful of the fact that it is a field occupying a high position from which the front and rear of the arena of life are seen.

If we do not improve, if we are not helpful, if we do not make the world better by our having lived in it we have failed.

I esteem it a great privilege to give my time and efforts in the discussion of great questions which concern the welfare of the human race. If I shall succeed in leading you to the conclusion that we as physicians are in the midst of

not in the van of the movement for the betterment of the race, my efforts will not be in vain.

The world needs you. The race is looking to you for something better, for improvement and guidance to a higher plane of being, and the on-coming tide of advancement will not wait; therefore we must surmount it and do our part well. We can not escape the responsibility that we are our brother's keeper, and if we do shirk the burden, like the boomerang it will come back to us heavier than before.

Fitted as we are, should we not as physicians take an active part in this great movement for the betterment of the race? Is it not a part of our work to conserve, perpetuate and perfect those qualities and characteristics which tend to elevate, enlighten and enhance and beautify the human race? The human body is a wonderful book which every physician studies constantly. We become intensely interested when we are called upon to explain why the defects of the body visit the off-spring down even to the fourth generation.

We are not helpless; our efforts are not in vain; we find in biology a basis for scientific labor. From its pages we view the thread of our existence from the beginning of time down through the ages to the present hour.

In viewing the wonderful progress of the present century we must not forget the mistakes and the eating cancerous decay resulting from error and dissipation. Gesner was patriotic and faithful in his efforts and through his labors biology took on the aspect of a true science. He opened the way and established living principles which were eagerly accepted by those who followed him and the scientific world was forced to give recognition to the work accomplished. Step by step advancement went on, becoming broader and deeper.

During the 17th century Harvey told us of the wonderful blood current coursing its way through our bodies, and proved that all animal life was produced from the ovum, giving us the basis of our present anatomy and embryology. Progress even beyond imagination kept on. Organic chemistry was spread on the pages of science and we were told that animal life could be sustained only by the absorption of organic compounds. That the blood and other organic fluids could be analyzed. Branch after branch

*Read before the Jefferson County Medical Society, Mt. Vernon, Ill., Feb. 25, 1915.

was added until it seems at the present time biologic sciences are most complete.

Such men as Darwin, Russell, Wallace, Haeckel, Huxley and Galton have given us scientific principles which burn their way into our hearts and force upon us the human animal with the theory of natural selection.

We know that the greatest means at our command at present to maintain, improve and perpetuate our present high standard of life, and to fight imperfections, imbecility, deficiency, premature decay and disease is through biology and its sub-sciences, histology, pathology, bacteriology, physiology, zoology, morphology, organic chemistry and botany.

We will define eugenics as that science which seeks to elucidate all those agencies affecting racial qualities inherent or hereditary that contribute to the ideal development of the human race.

Eugenics necessarily must be of vital concern to the nation. Dr. J. H. Kellogg, superintendent of the Battle Creek Sanitarium, in addressing the National Conference on Race Betterment took for his subject "Needed, a New Human Race." Dr. Kellogg, from his wide experience and knowledge, must be convinced of the degenerative condition of the present generation and that we should not longer delay but a new race should be started in obedience to those principles which lead to a better, more perfect and cleaner offspring. We have, by the application of scientific principles, a new race of horses, cows and pigs, why should we not have a new and improved race of men and women?

Just a few generations of correct breeding is all that was necessary to give us our new race of horses, cows and pigs. In fact the breeding and training was so perfect that defects were cut out and desirable qualities and characteristics so established as to virtually create a new species. The chicken has been made to improve and we now have the hen which produces 300 eggs every year.

The same principles have been applied to the vegetable world with marvelous success. The present age is progressive. The advancement in the arts, sciences, ethics and other matters pertaining to the intellectual and social life has been wonderful, but we all know that high states of civilization have decayed and given place to low

the degenerate conditions. We know that many ignorant and savage races are actually degenerate, and have descended from ancestors possessed of a high state of civilization.

We, the white race, are not exempt from this degenerative process. Present conditions seem so perfect and progressive that we are satisfied to think that the race is progressing too.

I fear such is not the real condition. Are we fully aware that we are subject to the laws of evolution as all other races have been and are as likely to give way to degenerative processes? We have the energy, we have the intelligence and can ascertain the causes of conditions and can put in operation processes which will control our destinies.

We have the light of history to help us. Greek civilization sat upon the pinnacle of human greatness and they degenerated. It is said that time runs an elevator which runs both ways, down as well as up.

Acquired characteristics become hereditary and the race goes up or down as our environment gives us the acquired traits.

Sir Ray Lankester says: "Civilized mankind appears to be very nearly completely in a condition of cessation of selection. It is the better provided and well fed and well clothed and well protected classes of the community in which the cessation of selection is most complete."

Racial degeneration is therefore to be looked for in those classes quite as much or more than in the half starved, ill-clad and struggling poor.

So it does seem that the unregulated increase of the race must lead to results which can only be described as general degeneration. It is interesting to note that the cessation of selection is more complete and the consequent degeneration of the race would be more probable in the higher classes. Then the recruits of our civilization are more extensively than formerly from the less fit element of the community who are afflicted with degenerative diseases which lower the vitality of the race constantly and increase the death rate.

Learned men in medicine and vital statistics tell us that 60 per cent. of the degenerative deaths are preventable if the disease is discovered in time, and are advising periodical public health examinations of all children of public school age.

We spend our money and energy fighting dis-

eases that can be communicated; why not do as much fighting degenerative processes which are lowering the vitality of the race?

The physician is naturally looked to for help and guidance on all questions pertaining to life and health and it is up to us to take an active part in this vital movement for race betterment.

It is the opinion of our best thinkers and men of science that heredity and environment are two great causes in operation that are responsible for the transmission of acquired characteristics.

The blighting influence of alcohol, drug gluttony, sensuality, syphilis and other vices cannot be denied, and their destructive influences are increasing. We must establish laws which will check the operation of heredity in the offspring of the unfit and make eugenics a matter of public concern and education.

I believe it is within the power of man to so modify his environment, and to so control the evolutionary forces which are working upon him as to eliminate the degenerative and destructive tendencies and to promote, encourage and intensify the forces which work for race betterment and human excellence. The forest is not cleared away in a day; the removal of bough and branch does not prepare the soil for better production. It is the removal of both root and branch which gives us from the soil a new and better product. So it behooves us to start right and give our money and energies to the establishment of those principles which are correct and scientific, and our efforts will succeed and we will establish and perpetuate a better, more perfect and clean race.

Ignorance and prejudice refuse counsel, and it becomes necessary to have compulsory laws in defence of justice. This is exemplified in our present sanitary and quarantine laws. We should have a eugenic registry office to establish a race of human thoroughbreds. Four generations will give us a new race.

Ignorance should give place to education on the fatherhood and motherhood of our country. The boys and girls should graduate in eugenics and know the laws pertaining to life and degenerative diseases.

Why should they not know the truth, there is nothing in the legitimate reproduction of the race that is not pure and clean? Honesty and frankness strengthen and beautify true modesty. I have nothing to hide from my boy or girl and

the sooner they find it out the sooner they will seek advice and information pertaining to life and eugenics.

Ninety per cent. of the young men of our larger cities are afflicted with venereal diseases. Sixty per cent. of the surgical cases in women can be traced to venereal diseases. Ninety-two per cent. of those afflicted with venereal diseases can be traced to our boys who go wrong, while eight per cent. can be traced to the girls who go wrong.

Then why should innocent women suffer and live lives of pain and affliction? Why should innocent children be born afflicted to suffer a life of blindness and disease, a burden to themselves and the world?

Why should not the unfit be made sterile before matrimony and rid the race of the unfit offspring? We want a race with a pedigree of true manhood and womanhood; we want a race with clean blood. It may be your son or daughter who will suffer. Then let us get busy while this great movement for race betterment is before the minds of the people.

Will we as physicians prove equal to the occasion?

PUERPERAL SEPSIS.*

R. N. LANE, M. D.,
GIBSON CITY, ILL.

During the discussion of a proposed change in our fee bill last spring it was pretty well demonstrated that we couldn't get together on any one item, except an increase in the fee for obstetrical cases. On this one point it seems there was not a dissenting voice. Why? Was it simply a question of long hours, loss of sleep, deferred meals or any one of a half dozen other reasons why we thought we were underpaid for this class of work? I think not.

Our secretary, from his ripe experience, very well expressed the real reason, I think, when he remarked that to him every confinement case was a source of more or less uneasiness from the time the first call came till the expiration of at least two weeks after the birth of the child without serious complications. In other words, we assume in these cases a tremendous responsibility,

*Read at Annual Meeting of the Iroquois-Ford Medical Society, December 1, 1914.

and even since the fee has been raised, I believe we are still inadequately compensated for work which involves not only much personal inconvenience, but an ever-present risk to our reputation as well.

It is not my intention to attempt an exhaustive exposition of this subject. It would only weary you with facts with which you are already familiar. The etiology and treatment of this form of infection are of prime importance, so my remarks will be confined chiefly to those two topics, trusting that the discussion of my paper by others may bring out many points not touched upon and yet which could be considered with profit at this time.

To Oliver Wendell Holmes in America and Semmelweiss in Europe are due the credit of first calling attention to the "child-bed fever" of earlier observers as a contagious disease. The former's classical paper on this subject appeared in 1843; the latter, working independently, it seems, made his epoch-making discoveries during the years 1846 to 1848. These facts are well known and need not be dwelt upon. America may well be proud of her great scholar, who not only wrote so well, but who also observed so carefully and reasoned so logically. A few crisp sentences from his immortal plea for mercy and cleanliness in the confinement chamber may not be amiss:

The woman about to become a mother should be the object of trembling care and sympathy wherever she bears her tender burden or stretches her aching limbs. The very outcast of the streets has pity upon her sister of degradation when the seal of promised maternity is impressed upon her. The remorseless vengeance of the law, brought down upon its victim by a machinery as sure as destiny, is arrested in its fall at a word which reveals her transient claim for mercy. God forbid that any member of the profession to which she trusts her life, doubly precious at that eventful period, should hazard it negligently, unadvisedly or selfishly.

No less pathetic than the prospective mother Holmes pictures is the figure of Semmelweiss, himself. Satisfied in his own mind that he had made a great discovery of untold importance, he preached his theories in season and out of season to anyone who would listen, only to meet calumny, ridicule, scorn. His sensitive nature failed to weather the storm of odium heaped upon him. He died a hopeless lunatic, strangely enough, from septic infection, a disease he tried

so hard to explain to those who had ears, yet would not hear. A later generation has since erected a magnificent monument to commemorate the work of this misguided genius, who was truly a voice crying in the wilderness of medical disbelief.

Etiology. That the physician himself is the most prolific source of puerperal infection is a pretty well-established fact. It is not only a common belief among the laity, but is generally admitted by the profession as well. However, there are a few exceptions which should be borne in mind, and these will be mentioned in the proper place. Their possibility may prove comforting to our peace of mind. They may even prove to be justifiable excuses for unfortunate results—a shield, as it were, between us and a critical family. I would not deny the right or even the duty of any man to protect himself at such a time by any means that is fair and reasonable, even to a bare possibility. But this is a meeting of medical men. Confidentially, at least, I think we will all admit that the indictment as stated above is, in the great majority of cases, approximately correct.

First of all, let us bear in mind that the vagina of the average healthy woman about to be confined contains comparatively few bacteria capable of doing much harm. It is true that a smear of the vaginal secretion will show many different micro-organisms and that they are present in great numbers. But most of them are non-pathogenic. Indeed, many of them are nature's outposts standing guard against infection by more virulent strains. In 195 women examined Döderlein found streptococci in only eight, and in but five of these could inoculation experiments prove that they were possessed of any virulence whatever. In 200 cases Krönig could not demonstrate the presence of streptococci in a single case. It is probable that the woman who normally harbors a few in her vagina acquires an immunity to that particular strain, and that they are, therefore, practically harmless. But to introduce into her vagina a finger or an instrument teeming with this same micro-organism, acquired perhaps from a case of erysipelas or scarlatina, is an entirely different proposition. Under such conditions she is almost sure to become infected.

Nature further guards against infection by

the normal mechanism of labor, if not interfered with too seriously from without. These are, according to Hirst: 1. The discharge of the liquor amnii, washing the vagina out. 2. The passage of the child's body, scrubbing the vagina out. 3. The descent of the placenta and membranes, and (4) the bloody discharge which follows. Non-interference, therefore, would seem to be the surest way to avoid infection. But, of course, there are other things to be considered, necessary procedures to be carried out in most cases, and these logically preclude the ideal policy of non-interference.

That the parturient woman may become infected from sources other than the physician or nurse is admitted by all authorities. She may have a pus tube or an appendiceal abscess which ruptures during labor. I have personal knowledge of such a case, which was confirmed by post mortem. Her blood stream may carry infection from a distant focus. That such things are possible is well illustrated by the occasional presence of pelvic peritonitis in virgins suffering from tonsillitis, otitis media, etc.—or the development of a suppurative osteo-myelitis in a child without any apparent cause. She, herself, may be the real culprit by introducing her own finger into the vagina. Lastly, her husband's conduct during the last months of pregnancy may not be beyond reproach. DeLee mentions a case in which intercourse ruptured the bag of water and the baby was born before the medical attendant arrived. A violent infection ensued from which the patient died. When we are reminded that the streptococcus is found in the urethras of 12.5 per cent. of healthy men, to say nothing of the gonococcus which is an uninvited guest at many weddings, we may realize that here is a very real danger, which perhaps has not been sufficiently emphasized. It should also be remembered that the following conditions are frequently predisposing causes of auto-infection:

1. Excessive bruising of the soft parts.
2. Great delay in delivery after membranes have ruptured.
3. Retention of placental fragments or blood clots within the uterus.
4. Shreds of membrane left hanging down from the cervix, thus forming a bridge through which micro-organisms may easily pass up from the vagina into the uterus.

Treatment.—In this disease, as in most others, treatment should be considered, 1, as preventive; 2, as curative. Of the two forms mentioned, the former is of paramount importance.

We are all familiar with ideal methods as outlined in text-books and more or less faithfully practiced in the better class of hospitals. How much of these ideal methods can or should we, as country doctors, attempt to carry out? I will answer the question by outlining my own procedures, freely admitting that they fall far short of the ideal and that others may and perhaps do follow out a better technic.

To every obstetrical case I take, besides necessary instruments, dressings, antiseptics, etc., a good, stiff nail brush, liquid soap, a pair of rubber gloves and a gown. The latter need not be sterile if that fact is borne in mind, but it should be clean and freshly laundered. The gloves and instruments are boiled while I am washing my hands. This is done by scrubbing in warm sterile water with brush and soap for at least five minutes, and repeating the scrubbing in a basin of clean water. This is followed by immersion of the hands and forearms in 2 per cent. lysol. The gown is put on and then the gloves, after they have been boiled and dropped into lysol solution.

While this is being done I instruct the nurse or female attendant first to wash her own hands, then take a basin of clean, warm water, soap and towels and wash the external parts of the patient thoroughly. A clean sheet is then thrown over her, being left loose at the foot of the bed, so it can be drawn up between her knees. She is asked to lie on her back in the lithotomy position; the sheet is carefully draped about her legs to prevent undue exposure, and a clean towel is slipped under her buttocks. This being done, I rinse my gloved hands again in the lysol solution, sponge off the vulva with some of the solution, dip the hands once more into the lysol, then proceed with the examination, being careful that the vulva is well separated by the thumb and index finger of the other hand to avoid contamination of the examining finger before it enters the vagina. I do not shave the parts unless operative procedures become necessary—although I believe it would be safer to do so. Here, at least, I have allowed my better judgment to be overruled by more or less trivial objections. I do not anoint the examining finger with vaseline or olive oil.

I have several times observed a fairly careful technic completely undone by jabbing a clean finger into a dirty jar of vaseline just before making the examination. It is a useless and dangerous practice.

The number of internal examinations is limited as much as possible. No douches are given, unless a very hot one in cases of severe hemorrhage. It is better to avoid it even in such a case if possible. During the termination of the second stage care is taken to avoid contamination of the field with feces. This is best done by wiping the perineum clean with gauze sponges soaked in lysol solution, and changing the clean towel under the buttocks as often as necessary. Following the birth of the placenta the finger or hand is not again introduced into the vagina unless absolutely necessary. Nothing is to be gained by trying to repair a lacerated cervix at this time. It can be done better several months afterwards and with less danger. Of course, a lacerated perineum is repaired at once. After being cleaned up a sterile pad is applied and the policy of non-interference is pursued. The nurse is instructed to wash her hands carefully before replacing the sterile pads and to give no douches. The supine position is insisted upon only for the first six or eight hours. After that the patient is encouraged to turn over on her side. I believe we secure better drainage in this way and avoid the tendency of the heavy uterus to become retroflexed and permanently fixed in that position.

Curative treatment is much less satisfactory. Here the widest diversity of opinion exists, and I shall dismiss the subject with a very few words, leaving to others an opportunity of expressing themselves upon this perplexing question. It is quite probable that the tendency is to do too much. When we are reminded that within four to six hours after infection of the endometrium, the micro-organisms have already penetrated deeply into the uterine musculature, the futility of curetting such a womb should be apparent; it is not only useless but also dangerous. Such a procedure is very often followed by a chill and high fever, a pretty good indication that we have done more harm than good by opening up new channels of absorption and thus adding more fuel to the flames. The finger is much less dangerous than the curet. But, unless I am fairly sure that

the trouble is merely a sapraemia due to retained fragments of placenta, membranes or blood clots, I leave the interior of the uterus severely alone. DeLee's results in his well-known policy of non-interference compare very favorably with any so far achieved by more active methods. During the past seventeen years 15,784 women have been delivered in his service at the "Chicago Lying-In Hospital." "Of these, about 10 per cent. developed fever of 100° or more. In only one case was the uterine cavity invaded and a douche given. The remainder—over 1,500—were treated expectantly. Of these, all but seven recovered, two of which had received questionable treatment from other sources before entering the hospital."*

General measures are important and should not be neglected. Specifics are still of questionable value. Many have been tried and eventually discarded. Mercury or salt solution intravenously, silver as "Unguentum Credé," as well as anti-streptococcic serum have been used with apparent benefit by some. I have seen two cases in which the latter was used with good results. But unless the infection is one of purely streptococcic origin, it will probably do no good. More lately, vaccine therapy has been advocated by some. I have had no experience with it, but neither my reading along this line nor my experience with it in other kinds of acute infection encourages me to have much confidence in it.

Finally, I would reiterate my firm belief that if rigid asepsis be our watch-word in the conduct of every labor case, the question of what to do or what not to do should infection occur, need not concern us, except in rare instances, and these we can approach with a clear conscience, judging each case on its own merits and as circumstances seem to demand.

PYELITIS IN CHILDREN.*

GEORGE J. LABEN, M. D.,
PAPINEAU, ILL.

The recognition of pyelitis in children is easy, but often overlooked, simply because the possibility of its occurrence is forgotten, and the urine of an infant is seldom examined.

Unrecognized acute pyelitis in infancy gives rise to prolonged severe fever with profound con-

*Principles and Practice of Obstetrics, De Lee, 1913.

*Read at Annual Meeting of the Iroquois-Ford Medical Society, December 1, 1914.

stitutional disturbances which may prove fatal. Recognized and treated, it will often subside in a few days, and even though the symptoms persist for a time they become less severe and yield to continued treatment.

A clinical picture drawn of an infant under two years: Is taken sick suddenly. Patient is hot; temperature found to be 103, ranging day by day from 101 to 105; is fretful, miserable, crying out suddenly as if in pain; often twitching of the fingers and eyelids. Vomiting may be present or absent, stools perhaps loose, costive or possibly normal. Careful examination fails to reveal any definite signs of the infant's trouble; still child is not well. No explanation of the condition is forthcoming until the urine is examined, when pus and bacteria are found.

Sex. Pyelitis is almost, but not exclusively, an affection of the female infant. This predominance of girl infants is consistent with the view that the infection of the urinary tract ascends. The vulva is soiled with feces, and the bacteria pass through the bladder and up the ureter to the kidney.

Age. The disease is much more common in infants than in older children, because the soiling of the vulva with feces most easily occurs during the diaper age. Further, the bowels have often been loose before the onset of the pyelitis, or if there has been no diarrhea, the stools have been unhealthy in some way—green, curdy, or offensive, sometimes only constipated. In harmony with all those facts the bacillus coli is found to be the exciting cause in the greater number of cases. Rarely is the proteus or other bacteria found. Evidently the infection must have come from the bowels. The route to the kidneys may be in some cases by the blood stream. At any rate, pyelitis does occur in the male infant as shown by symptoms suggestive of a blood infection.

Symptoms.—A striking feature in most cases is the suddenness of the onset. In one case the infant being dressed by its mother, apparently well in the morning, suddenly turned blue and seemed cold and faint. Another infant has gone out, seemingly in perfect health, with its mother, nurse or maid, when she suddenly becomes acutely ill and is brought home sick or maybe in convulsions. In some cases the supposed convulsion is a genuine chill. In other cases the in-

fant goes blue and cold, but does not actually shiver. Dr. John Thomson, of London, England, laid stress on the importance of rigors in diagnosis, and has pointed out that they are extremely rare in infancy apart from acute pyelitis. The extreme misery and restlessness is striking, except when, owing to the severity of the infection, the infant has already fallen into a drowsy, almost comatose state.

The complexion is pale—earthy; the skin hot, dry, and with such a condition nothing has been found to account for the high fever, 103 to 104 and possibly 105, except that pus will probably be found in the urine.

In some cases the abdomen is fuller than usual. The infant seems to be discomforted more than natural. In older children definite tenderness is sometimes found over the front part of the abdomen, simulating appendicitis.

Pyelitis may assume the role of acute central disease. The child is drowsy, seems comatose; there is a muco-pus on the cornea; neck is stiff, head slightly retracted. Even there may be a squint and slight convulsive twitching of the limbs. Such cases are often taken to be meningitis.

One particular point is that the temperature is a puzzle so long as the disease remains unrecognized. Day after day it varies from 103 to 104, and may reach 105. Usually it shows no signs of abating for several weeks, but under proper treatment the temperature falls within two or three days to a much lower level, if not to normal.

The one essential, in diagnosis, is the examination of the urine, which is generally neglected. "It is a baby" and so one cannot get the urine. Therefore, the urine must be obtained by some method, and the best I know of is by catching the urine in absorbent cotton, which, if washed with a little water, will drain off the pus cells. Another plan is to lay the infant upon a waterproof mackintosh until the child urinates, and pour the water so caught into a container.

A physician may say he found the urine "clear and acid" with no albumin, yet, further examination shows pus and albumin. Again, the physician says there cannot be pus, for he found no albumin. But he used the nitric acid test, and on using the boiling test with the addition of a few drops of acetic acid, being careful to fill the

test tube three parts full and to boil only the upper half-inch so that the slightest turbidity may be seen by contrast, one is able to show that there is albumin, however extremely little, corresponding to the very small amount of pus found in many of those cases. The use of the nitric acid test is a common cause for overlooking traces of albumin in the urine.

Even when the urine has been found to contain a trace of albumin, there has been so little cloudiness of the unboiled specimen and such an apparent absence of deposits, that the physician has not thought it necessary to examine it microscopically. It must be remembered that the amount of pus is generally microscopic; often only five, six or even fewer pus cells found in a field under a 1/6 objective when the shaken-up urine is examined, even when the symptoms are severe. It is an advantage to examine the shaken-up urine rather than the urine which had been allowed to stand or had been centrifuged. The examination of a deposit gives no idea of the relative amount of pus present. The deposit obtained by standing or centrifuging a urine which would show eight cells to the field in a fresh or shaken-up specimen does not differ from one which would show thirty cells, so that a valuable standard of comparison is lost. This principle applies not only to pyelitis but also to other urinary conditions, such as nephritis and hematuria.

The urine of pyelitis before treatment is acid, usually very acid, and commonly shows under 1/6 objective an average of about six to thirty pus cells per field, and here and there a group of perhaps 10 or 12 or more stuck together. Usually, but not always, bacilli can be seen singly or in clumps, and in a very large majority of cases they prove to be bacilli coli.

There are some extremely misleading cases in which the diagnosis has to be made after the disease has become chronic. These come to the doctor under the guise of marasmus—a miserable, fretful and wasting child. At first sight there seems to be enough to account for this condition.

The infant takes food badly, the stools are unhealthy and no one has doubted but that the trouble was simply digestive.

The extraordinary fretfulness and misery, however, may suggest something more, and inquiry

elicits the fact that there was some febrile illness. It may have been a month or more ago, or perhaps there has been a good deal of irregular fever, which has been attributed to teething or what not. In older children also the chronic stage may show itself as a wasting disease.

For example, a wasted girl of seven or eight years old is seen, and from her appearance supposed to be phthisical, but the temperature chart is unlike phthisis, the fever alternating with longer periods of normal temperature. The child is more cachectic than her doubtful pulmonary signs show. An examination of the urine shows large numbers of pus cells and coli-form bacilli.

Acute pyelitis in older children is easily overlooked. As in the younger children, there is rarely any local symptoms or disturbances of micturition to call attention to the urine. The child is feverish, complains of headache, perhaps has a rigor, or is sick, and sometimes there is a definite pain in the abdomen which may suggest appendicitis.

For example, a child, aged 10 years, has pain in the right side of the abdomen with high fever; symptoms began suddenly, very drowsy, some headache, marked rigidity on the right side of the abdomen, appendicitis suspected, diagnosed as such, operation recommended, but the urine examined shows acidity, pus cells, and coli-form bacilli. Potassium citrate given, appendicitis gone to stay gone.

Diagnosis.—Pyelitis is mistaken for several diseases. The most common is tubercular meningitis, but the high fever and acute onset are unlike tubercular meningitis and more resemble cerebro-spinal meningitis, which it is often diagnosed. The prolonged fever without physical signs leads to the diagnosis of typhoid fever, but again the acute onset throws doubt upon the diagnosis. The sudden onset and high fever may be attributed to latent pneumonia.

These mistakes can only arise if the urine is not examined, and it is negligence not to do so. Again, a girl with some fever, headache, some pus in the urine, but found suffering with vulvovaginitis. Is it pyelitis or is it something else? The presence of fresh urine with bacilli found helps. The vulva discharges are due to some form of cocci.

The distinction between tubercular pyelitis and

coli-pyelitis is by no means easy, especially chronic pyelitis. Tubercular affections are not likely to show sudden acute onset or severe constitutional symptoms like the coli disease and blood is often found in tubercular urine, but not very often found in coli-pyelitis.

Prognosis.—To any not familiar with the disease an infant stricken with acute pyelitis seems well nigh hopeless, but the prognosis is generally good. As a rule, under efficient treatment, recovery is not only rapid but complete. In cases where there is involvement of the kidney itself, the prognosis is, of course, bad. In the chronic cases of bacteriuria the prognosis is ultimately bad.

Pathology.—The pathological findings in the urinary tract were small in comparison to the severity of the symptoms. The reports of Prof. Ricker from microscopic examinations of the mucous membranes were usually negative and were reported mostly as normal. This includes the mucosa, submucosa, the ureters and the bladder. This report of the urinary tract contrasted greatly with the finding of the kidneys themselves. In most cases he found many small abscesses under the capsule with corresponding changes in the parenchyma. These cases were suffering from pyelitis, and either died of this or other acute diseases.

Treatment.—The treatment of acute pyelitis in most cases is satisfactory. The important thing is to keep the urine constantly alkalized. The best drug found for this purpose is potassium citrate. It depends upon the proper frequency and dosage. It is useless unless given to render the urine alkaline, 5 grains given every two hours by day and every four hours by night. This dose will do up to the first year of age. The only guide to the efficiency of the dosage is the reaction of the urine, which should be kept alkaline. It is sometimes surprising what doses it takes to do this; 8 to 10 grains of the potassium citrate every two hours may be sufficient or it may take 20 grains every two hours. But there is a limitation. Large doses of 10 to 20 grains of the potassium citrate are apt to disturb digestion and set up a diarrhea which is often troublesome. When this happens bicarbonate of sodium or bicarbonate of potassium, in doses of 5 to 10 grains every two to three hours, may maintain the alkalinity brought about by the citrate. Every

day or second day the urine should be examined to find if the pus cells are diminishing. The disappearance of the pus cells is an easy criterion. To disregard it may be sowing the seed of future trouble.

There are some cases where the alkali treatment fails. This sometimes occurs when the pyelitis is due to some organism other than the bacillus coli, namely, the proteus bacillus. When this occurs urotropin usually does good, 1.5 to 2.5 grains every four hours, for an infant from six months to one year old. Salol is also a useful drug, one grain every four hours to a child of six months old.

If, in spite of all, drugs fail in obstinate cases, the pyurea and irregular temperature persist, autogenous vaccine treatment may be tried, doses from 5 million up to 8 or 10 million may be tried upon a child of six months old, and gradually increased to 15 or 20 million within one or two weeks.

Whatever treatment is used, stimulants are often necessary, especially in the acute stage. Brandy may be used 15 minims every four hours, if thought necessary. If there is any tendency to convulsions phenozone 0.5 to 1 grain may be given to a child from six months to one year old, and should be given with 2 to 3 grains of sodium bromid until all signs of the coming on convulsions are quieted.

Where tenesmus is severe, irrigation of the bladder with 3 per cent. silver nitrate solution neutralized at once with normal salt solution is often followed by marked and at times with permanent relief. But whatever treatment the attending physician sees fit to pursue, it behooves him to diagnose his case thoroughly and then treat conscientiously, for on this is his standing as a medical man established.

THE USEFUL SPINE.

The teacher of a class of small children recently gave a physiology lesson on the bones of the body. The time to ask questions had come.

"Who will tell me what the backbone is?"

The question was a poser, and no one ventured a reply.

Finally the teacher detected a gleam of hope in Sammy's face, and smiled encouragingly at him.

"Well, Sammy?"

"The backbone is a long, straight bone. Your head sits on one end, and you sit on the other," answered Sammy.—*Harper's.*

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Society proceedings and news items to Dr. Henry G. Ohls, Managing Editor, 927 Lawrence Avenue, Chicago.

APRIL, 1915

Editorials

SHALL OUR MEDICAL PRACTICE ACT BE REWRITTEN?

In another column of this issue are published resolutions passed by the council of the Chicago Medical Society, while having under consideration the report of its Public Relations Committee.

These resolutions relate to the actions and recommendations of "The Efficiency and Economy Committee," which was created by the 48th General Assembly.

These resolutions should be read by every member of the society, and as soon as it is published, they should read and study carefully the bill proposed to take the place of our Medical Practice Act. We have not had an opportunity to read the proposed bill in its entirety, having up to this time had an opportunity to read only fragments of it.

We have the report of the committee, and if the bill is to be in conformance with the committee's report, then we think the profession had better watch the matter closely. The committee's report is, in part, as follows:

It is recommended by the Efficiency and Economy Committee that the several health agencies

be reorganized and combined into a State Health Department. This department should be under the general direction of a salaried Health Commissioner, as the responsible executive officer; with an unpaid State Board of Health of five members, to be appointed by the Governor, with the advice and consent of the Senate, this board to act as an advisory body, with power to approve rules and regulations and to decide appeals in specified cases from bureau officials. This board should not be entirely composed of physicians. The department should be organized with a number of divisions or bureaus, such as vital statistics, sanitary inspection, food inspection, and laboratories. The food inspection service may, however, be placed in the department of agriculture.

The State Health Department should also have supervision over the examination and licensing of physicians, pharmacists, dentists and nurses and the regulation of those authorized to carry on other professions and trades for the protection of the public health. A small board or committee should be provided for each profession, to arrange for examinations and to issue licenses and revoke them for cause. So far as practicable, the clerical and administrative work in connection with such examinations should be handled through one office; and the action of the examining boards in revoking licenses should be subject to review by the State Board of Health.

It is rather difficult for us to see why an *unpaid* State Board of Health should act under a salaried health commissioner. We can see many reasons for having a State Board of Health and for having a commissioner or secretary, acting under the direction of that board, but it looks to us as if they got the cart before the horse.

We hardly think the people of Illinois or the medical profession of the state are anxious to have a one man dictator in health matters, but rather prefer the work of a well-chosen board of seven earnest men, who will give the state the benefit of their knowledge.

We fail to see why the members of the State Board of Health of Illinois should not be paid for their services. It looks much like another abuse of medical charities. It is a repetition of the old story—getting gratuitous services out of the medical profession. Why, in the name of all that is fair, should state and municipal officers always try to beg the free services of the medical profession?

It is time the profession take interest enough in legislative matters to firmly inform gentlemen of legislative bodies that medical men shall be paid what their services to the commonwealth

are worth. Do lawyers ever serve the state gratuitously? Do the legislators give their time to the state? Does any other class of men work for the public without pay? No.

Since there was an appropriation of \$40,000 for the use of the Efficiency and Economy Committee, it seems to us that the committee is hardly consistent, and we might ask if any one of this committee refused to be paid for his services.

We also fail to see why a State Board of Health should not be entirely composed of physicians, and those physicians should be chosen without regard to their political affiliations. Would a professional politician, a capitalist, or some one interested in commercial food products, be of greater service to the state in determining health problems?

The committee virtually recommends the re-writing of the Medical Practice Act, thus giving every cult an opportunity to have special legislation favorable to its entrance as practitioners of medicine, under various sorts of examination boards. The licensing of practitioners of medicine is just as much a matter of public health as is any quarantine regulation, or as the prevention of an epidemic of typhoid fever. The medical profession wants but one entrance to the practice of that profession.

We maintain there should be but one Health Board in Illinois, and that all matters pertaining to public health should be regulated by that board, this including the examination and licensing of all individuals wishing to practice medicine in any of its branches, or those having in any way anything to do in matters pertaining to the health of the people.

NOTICE—VICIOUS OPTOMETRY LEGISLATION.

There has been introduced into the 49th General Assembly, House Bill No. 9, and in the Senate, Bill No. 30, which are identical and known as the Optometry Bill.

Now doctor we wish you would communicate with the senator of your district and also the representatives and register the protest of the medical profession against this effort of the optician to break into the practice of medicine.

Some of the reasons advanced by the medical profession why these bills should *not be enacted into law*:

1. The medical profession has no objection to the optician as a spectacle merchant, or manufacturer of glasses, or, as often is the case in the country, to fitting the simpler errors of refraction.

2. A medical training is absolutely necessary for the proper prescribing of glasses for any or all defects in acuteness of vision.

3. The profession objects to the optician taking on the new name of "optometrist," which has no fixed meaning in the minds of the people such as the word optician, and asking the legislature to define its meaning, "*as the employment of means other than the use of drugs, medicines, or surgery for the measurement of the powers of vision and the adaptation of lenses for the aid thereof.*"

4. Because it practices a fraud on the people, first, by the assumption on part of the opticians that the fitting of glasses for the correction of errors of refraction of the human eye rests with the optician, *when for several hundred years it has been in the hands of the medical profession.*

5. We object to the legislature certifying that an optician, under the name of optometrist, is *competent* to correct all defects of vision in the human eye requiring the use of lenses, when in the nature of things he *cannot do so without a medical education.*

6. If this bill is enacted into law, and the term "optometry" is used in the sense in which it is employed in these bills, the people will *have a fraud practiced upon them because they will have a right to assume that the optometrist is competent to correct all the errors of refraction in the human eye by the use of glasses, and that he is different from an optician.* The bill itself provides that all opticians who have been practicing "three years next preceding the date that this act takes effect shall, upon the payment of a fee of \$5, be granted a certificate of registration as registered optometrist." A very dangerous section this—opening the gates wide for incompetency to become legalized and recognized.

7. We maintain we have reasons to believe in the light of subsequent events, that, when the National Association of Opticians of the country met in 1904 and adopted the term "optometry," they did so *with the deliberate purpose and avowed intent to deceive the public, and that morally by so doing they perpetrated a fraud upon the public.* The optician before 1904 was doing the same work, *no better and no worse than he is doing it today.* Previous to 1904 there were vendors of glasses, but *they did not call themselves optometrists; they called themselves simply opticians, and the public was not deceived into believing that they were a body of trained men, experts in the correction of human vision by the fitting of glasses in all cases.* Under this name, however, which they have adopted and for which they now ask the legislature to define the meaning in law, the same vendor of glasses going up and down through the different communities of this state is a menace, because *under this*

new name, the people have a right, if the legislature passes this act, to assume that he is competent to correct all defects of human vision by the fitting of glasses.

Public Relations Committee, Chicago Medical Society,

J. V. FOWLER, Chairman,
NOBLE M. EBERHART,
GILMAN W. PETIT.

Legislative Committee, Illinois State Medical Society,

L. C. TAYLOR, Chairman,
NOBLE M. EBERHART,
J. H. BACON.

Legislative Committee, Chicago Ophthalmological Society,

WM. L. NOBLE, Chairman,
WILLIS O. NANCE,
WESLEY HAMILTON PECK,
PAUL GUILFORD,
WM. E. GAMBLE.

The bill is before the Judiciary Committee of the House. The members of the Judiciary Committee in Cook County are:

A. J. Dahlberg, 24 West 113th street.
Fred R. De Young, Harvey, Ill.
E. I. Frankhauser, 5517 Winthrop avenue.
J. J. Gardner, 1523 West Thirteenth street.
Harry F. Hamlin, 4730 Malden street.
J. H. Lyle, 6305 Yale avenue.
L. J. Pearson, Wilmette, Ill.
Solomon P. Roderick, Wilmette, Ill.
Isaac Rothschild, 4715 Michigan avenue.
William G. Thon, 2210 Cortez street.
M. L. Igoo, 5429 Greenwood avenue.
J. A. Weber, 3134 North Robey street.

The members of the Judiciary Committee from the state are:

William P. Holiday, Georgetown, Ill.
Edwin D. Shurtleff, Marengo, Ill.
Lee O'Neil Browne, Ottawa, Ill.
Walter M. Province, Taylorville, Ill.
William J. Butler, Springfield, Ill.
James E. Davis, Galesburg, Ill.
D. B. Ellis, Elgin, Ill.
William J. Graham, Alledo, Ill.
H. S. Hicks, Rockford, Ill.
William L. Leach, Amboy, Ill.
Thomas E. Lyon, Springfield, Ill.
John R. Moore, Wethersfield, Ill.
E. C. Perkins, Lincoln, Ill.
William N. Scanlon, Peru, Ill.
Robert Scholes, Peoria, Ill.
John Thurnbaugh, Mt. Carroll, Ill.
O. P. Tuttle, Harrisburg, Ill.
James A. Watson, Elizabethtown, Ill.
George H. Wilson, Quincy, Ill.
John L. Cooper, Fairfield, Ill.
John P. Devine, Dixon, Ill.
Daniel Donahue, Bloomington, Ill.
F. A. Garesche, Madison, Ill.
Carl Green, Robinson, Ill.
M. F. Henneory, Wilmington, Ill.
W. C. Kane, Harrisburg, Ill.
R. J. Kasserman, Newton, Ill.
G. A. Ray, Rossville, Ill.
Walter Kinchart, Effingham, Ill.
Arthur Roe, Vandalia, Ill.
Richard T. Taylor, Elizabethtown, Ill.
R. R. Thomeson, Kent, Ill.
F. E. Williamson, Urbana, Ill.

THE ANNUAL MEETINGS.

The annual meeting of the State Society, to be held at Springfield, May 18, 19 and 20, promises to be the largest and best meeting the society has ever had. There seems to be more interest in the meeting on the part of the members and officers and committees.

The Committee on Arrangements is working hard to make the time an enjoyable one, and to have everything agreeable for the members.

The Program Committee has a long and very interesting program planned. The titles of the various papers are published in this issue. The final arrangement of the program is not yet made, so that we cannot publish it in this issue as it will appear when complete.

Every member of this society should make strenuous efforts to attend, and the member who does not attend is the loser. The people want their doctors to attend medical societies and keep abreast with the new things. Furthermore, the men who attend the various medical associations are the men who command the larger practices, who receive the larger fees, and who have the greater respect of the people.

PUBLIC HEALTH AND HYGIENE SECTION.

The officers of the new section on Public Health and Hygiene are to be congratulated on the exceedingly interesting and state-wide program, which they have prepared for the coming state meeting at Springfield in May. It appears on page 316.

Many phases of the public health question will be brought forward for discussion by men well qualified to present their subjects in the very best manner possible, while representatives from every county medical society in the state have been asked to be present and to enter into the discussion. Every town and every city in the state, where a local board of health exists have also been requested to send representatives to this important public health meeting, in order that they may enter into the discussion of these public questions, and thereby contribute their experience to this *great work* and at the same time take away from the meeting all the important data, which the papers will present.

Another important feature of the Public Health and Hygiene Section, which will be of inestimable value, not only to those who attend this section, but also to the entire medical profession of the state, will be the Illinois State Board of Health Educational Exhibit.

Through the courtesy of the secretary of the Illinois State Board of Health, this wonderful exhibit has been placed at the disposal of the Public Health and Hygiene Section and will be on exhibit at a convenient place, where all may come and learn.

To miss either this program on health and hygiene or the State Board of Health Educational Exhibit, will be a distinct loss not only to the individual physician, but also to every city, town or community which fails to have a representative present.

Let us give this new section a rousing welcome in our midst.

MEDICAL PRACTICE LEGISLATION.

Extract from proceedings of the Council of the Chicago Medical Society at its meeting of March 9, 1915.

The Council of the Chicago Medical Society having under consideration the report of its Public Relations Committee adopted the following resolutions:

WHEREAS, The Committee on Efficiency and Economy appointed at the last General Assembly recommends to the present legislature the passage of a bill creating two administrative boards for the State Board of Health, in which respect the committee's own recommendations are contrary to the very purpose for which it was created, namely, "The concentration of Administrative Boards," and

WHEREAS, The report of the committee on Efficiency and Economy, if enacted, will necessitate the complete re-writing of the Illinois Medical Practice Act, thus endangering the health of the community and at the same time endangering the present high standard for admission to the practice of medicine, that it will afford an opportunity for the various "Paths," "Cults" and "Isms" to secure separate licensing boards and other class legislation which they have been seeking for a decade or more, and which special privileges on several occasions they very nearly secured because of forceful influence brought to bear on individual members of the legislature. Therefore, be it

Resolved, That the Chicago Medical Society is opposed at present as it always has been to the multiplication of boards, that it is opposed to any vital changes in the present Medical Practice Act—that it believes any gross attempt to rewrite the Medical Practice Act is a dangerous procedure—that it is opposed to the establishment of more than one standard for admission to the practice of medicine.

Be it further Resolved, That these resolutions be published in the ILLINOIS MEDICAL JOURNAL and the *Bulletin of the Chicago Medical Society*, and that a copy of the *Bulletin* together with a letter be sent by the Public Relations Committee to the secretary of the respective county medical societies throughout the State, to the Governor, and members of the Legislature, and that the Public Relations Committee of the Chicago Medical Society and the Legislative Committee of the Illinois State Medical Society use every means possible

to defeat any measure that does not conform to the pledge which has been the standard with the Public Relations Committee and State Legislative Committee for ten years.

"If elected to the Illinois Legislature, I will do my utmost to maintain one standard for all practitioners of medicine and will use my influence to defeat any legislation the object of which is to permit any cult to practice medicine at a standard of medical education lower than the standard governing those already in the field, under the pretext that its followers are not practicing medicine. I shall at all times support medical legislation which is in the interest of the people of the state and not for the interest of any special cult or school of practice. I shall vote to retain, in Illinois, a one board supervision over all medical matters, including the examination of candidates for practice. That the examination be for all alike, whether they belong to the now recognized schools of medicine or have tacked onto their names some 'path,' 'cult' or 'ism.'"

ACTION FOR CIVIL MALPRACTICE.

ROBERT J. FOLONIE, L. L. B.

Seventh Article.

CHICAGO.

It is perhaps not sufficiently realized by the profession how much stress is laid by patients upon cosmetic results. If there is a likelihood of deforming scars or bad results cosmetically, it is well to anticipate this by informing the patient, so that the disappointment may not be too keen and that the patient may by anticipation not receive it as a shock. Even greater care should be taken where the purpose of the operation is for cosmetic purposes. Not only the ordinary result of the operation is to be anticipated, but also the misconduct of the patient, which may render the result bad.

In the case of Dr. W. patient had for years been an artist's model and claimed that she had been in such demand as a model as to furnish steady and lucrative employment. She suffered a prolapse of the mammae, and sought surgical aid to have restored her charms to return to her chosen field of work.

Dr. W., who was first consulted, whether through disinclination, or modest doubt of his ability to improve upon nature, I know not, declined the case, but recommended Dr. D.

The operation was performed by the latter, but through courtesy to Dr. W., who had recommended the patient to him, he was invited to be present and out of curiosity, went.

Before the healing process was complete, patient sought to add to her income by engaging in a minor part in a vaudeville act. In this, one of the histrionic flights was a pillow fight. In this violent exercise she tore loose the stitches. A

serious infection intervened and the resulting sears precluded the possibility of her return to her previous work. The entire ill results were laid at the door of the two physicians and the resulting suit and newspaper notoriety were great.

There is, of course, a legitimate field for cosmetic surgery, but there are also those engaged in this line who are clearly quacks. There is a popular tendency from the fact that the quacks are constantly in the public eye to view this field as a particular field of the unethical.

The physician who deviates temporarily from the alleviation of disease to seek the adornment and perfection of beauty requires not only skill but foresight and tact in a high degree.

A greater impression is made upon a jury by an ugly scar than by a description, no matter how minute, of conditions which they can not see, and corresponding precautions are advisable to anticipate possibilities in the patient's mind by outlining them in advance, so that the patient's mind may be prepared for all the unavoidable consequences which may be reasonably anticipated.

THE PAN-AMERICAN CONGRESS.

Those members who are going to attend the A. M. A. meeting in San Francisco in June should arrange to go a few days earlier and attend the Seventh Pan-American Congress. A large attendance and a demonstrated interest in this meeting would help very materially in placing American medicine on a higher plane.

The Congress meeting, in seven sections, gives one the opportunity to get just that which mostly interests him. It is an opportunity which should not be missed, especially by those attending the fair and the A. M. A. meeting.

The Seventh Pan-American Congress will meet in San Francisco, June 17th-21st, inclusive. It assembles pursuant to invitation of the President of the United States issued in accordance with an act of Congress approved March 3, 1915.

The countries and colonies embraced in the Congress are the Argentine Republic, Bolivia, Brazil, Canada, Colombia, Cuba, Chile, Costa Rica, El Salvador, Ecuador, Guatemala, Honduras, Haiti, Hawaii, Mexico, Martinique, Nicaragua, Panama, Paraguay, Peru, Santo Domingo, United States, Uruguay, Venezuela, British Guiana, Dutch Guiana, French Guiana, Jamaica, Barbadoes, St. Thomas and St. Vincent. The organization of the Congress is perfected in these countries and the majority of them have signified their intention to be represented by duly accredited delegates.

The Congress will meet in seven sections, viz.: (1) Medicine; (2) Surgery; (3) Obstetrics and Gynecology; (4) Anatomy, Physiology, Pathology and Bacteriology; (5) Tropical Medicine and General Sanitation; (6) Laryngology, Rhinology and Otology; (7) Medical Literature.

All members of the organized medical profession of the constituent countries are eligible and are invited to become members. The membership fee is \$5.00 and entitles the holder to a complete set of the transactions. Advance registrations are solicited and should be sent with membership fee to the treasurer, Dr. Henry P. Newman, Timken building, San Diego, California.

The general railroad rate of one fare for the round trip, good for three months, made on account of the Panama-Pacific Exposition at San Francisco, and the California Exposition at San Diego, is available for the Pan-American Medical Congress.

The Palace Hotel will be headquarters.

The First Pan-American Medical Congress was most successfully held in the United States in 1893. Five intervening Congresses have been held in Latin American countries. It now devolves upon the medical profession of the United States to make this, the seventh, the most successful in the series.

CHARLES A. L. REED,

President, Union Central Building, Cincinnati.

HARRY M. SHERMAN,

Chairman Committee of Arrangements, 350 Post St., San Francisco.

RAMON GUIERAS,

Secretary General, 80 Madison Ave., New York City.

PHILIP MILLS JONES,

Special Committee on Hotels, 135 Stockton St., San Francisco.

OFFICIAL ITINERARY OF THE CHICAGO MEDICAL SOCIETY SPECIAL TRAIN.

Leave Chicago 10:00 p. m., June 17, via Rock Island Lines. Arrive Belleville 6:15 p. m., June 18, via Rock Island Lines. Arrive Colorado Springs 7:30 a. m., June 19, via Rock Island Lines.

Leave Colorado Springs 10:30 a. m., June 19, via Denver & Rio Grande. Arrive Salt Lake City 11:30 noon, June 20, via Denver & Rio Grande (Mt. Time).

Leave Salt Lake City 2:30 p. m., June 20, via Western Pacific (Pac. Time). Arrive Oakland 5:50 p. m., June 21, via Western Pacific. Arrive San Francisco 6:30 p. m., June 21, via Western Pacific.

Leave San Francisco 8:00 a. m., June 28, via Southern Pacific (Coast Line). Arrive Los Angeles 9:00 p. m., June 28, via Southern Pacific.

Leave Los Angeles 12:30 a. m., June 29, via Santa Fe Ry. Arrive San Diego 6:00 a. m., June 29, via Santa Fe Ry.

Leave San Diego 12:30 a. m., June 30, via Santa

Fe Ry. Arrive Los Angeles 6:00 a. m., June 30, via Santa Fe Ry.

Leave Los Angeles 4:00 p. m., June 30, via S. P. L. A. & S. L. Ry. Arrive Salt Lake 3:00 p. m., July 1, via S. P. L. A. & S. L. Ry.

Leave Salt Lake 3:30 p. m., July 1, via D. & R. G.—Colo. Midland. Arrive Denver 6:00 p. m., July 2, via D. & R. G.—Colo. Midland.

Leave Denver 10:00 p. m., July 2, via Rock Island Lines. Arrive Chicago 7:30 a. m., July 4, via Rock Island Lines.

The Rock Island has been selected on account of its numerous lines, making it of easy access to our members to join our Special en route, and also because it is the only direct route to Colorado Springs. This special schedule is so arranged to cover the scenic points en route by daylight, including the Grand Canyon and Royal Gorge and Feather River Canyon.

Members can leave St. Louis, Memphis or Kansas City, joining the Special at Belleville, Kansas, as follows:

Leave Kansas City 10:30 a. m., June 18th. Arrive Belleville, Kan., 6:15 p. m., June 18.

WHAT THE TOUR INCLUDES.

First class round trip ticket from Chicago to San Francisco, Los Angeles, San Diego and return. Pullman standard sleeper, one in each berth, Chicago to San Francisco and return. Automobile transfer of member and checked baggage to and from hotel in San Francisco. Seven consecutive days at New Hotel Plaza in San Francisco, including room with bath (two in double room) and seven breakfasts.

Seven admissions to the Panama-Pacific International Exposition and twenty admissions to attractions within the exposition grounds.

The cost of this tour as outlined is \$154.00 from Chicago.

In view of the congested conditions which will undoubtedly prevail during the vacation period of June, July and August at San Francisco, this plan was deemed the most definite and satisfactory one presented to the Council of the Chicago Medical Society, insofar as the approximate total cost of first class reservations required for each individual.

The new Hotel Plaza on Union Square is of the highest class in its every appointment and is one of the hotels selected as the headquarters of the A. M. A. Convention.

Each ticket is good for 90-day limit and allows return passage over any central or southern route desired.

Those making their reservations first will receive lower berths and best hotel reservations. The names of our party will be published as reservations are made.

Dr. R. R. Ferguson, 3923 N. Keeler avenue, Chicago, is chairman of transportation and hotels for this tour, to whom all applications for reservations should be made.

A WOMAN'S NUMBER.

The May issue of the *Medical Review of Reviews* is to be a Woman's Number. All the articles contributed will be from the pens of women physicians whose work has achieved national importance. With the growth of the feminist movement, the economic position of women has attracted universal attention. As medicine was practically the first profession open to women, it is only proper at this time to consider whether their entrance into the medical profession has been of benefit.

In order that women may present testimony by which they should be judged, it has been deemed advisable to give them an entire issue to present the evidence of the value of their accomplishments. In the laboratory, in the hospital, in institutions, at the bedside, and in public service, women physicians have performed a valuable function. As a tribute to their earnestness, enthusiasm, modesty, energy, perseverance, and scientific acumen, the May number of the *Medical Review of Reviews* will be dedicated to the women physicians of America.

INTERSTATE ASSOCIATION OF ANESTHETISTS.

The Interstate Association of Anesthetists will hold its organization meeting in conjunction with the Ohio State Medical Association in Cincinnati, Ohio, May 4-5, 1915, at which time the following elaborate scientific program, devoted exclusively to anesthesia and analgesia, will be presented.

"Foreword," Robert Carothers, Councillor 1st District O. S. M. A.; "Selection of the Anesthetic," Emmet F. Horine, Louisville, Ky.; "Nitrous Oxid Anesthesia in Obstetrics," Arthur E. Guedel, Indianapolis, Ind.; "Blood Pressure Under General Anesthesia," E. I. McKesson, Toledo, O.; "Conductive Analgesia for Intraoral Surgery," Hugh MacMillan, Cincinnati, O.; "Alkaloidal Medication in Relation to Anesthesia and Analgesia," Isabella C. Herb, Chicago, Ill.; "Anesthesia for Brain Surgery," Charles K. Teter, Cleveland, O.; "Use of Music During Local Analgesia," W. P. Burdick, Kane, Pa.; "Magnesium Sulphate Narcosis," D. D. DeNeen, Cincinnati, O.; "Ethyl Chloride Anesthesia," R. A. Rice, Columbus, O.; "Intravenous Anesthesia," C. L. Candler, Detroit, Mich.; "Preparatory, Operative and Postoperative Precautions for Hazardous Anesthetic Risks," Moses Salzer, Cincinnati, O.; "Vapor Anesthesia for Intraoral Operations," Paul R. Coble, Indianapolis, Ind.; "Local Anesthesia for Hernia Operations," Charles T. Souther, Cincinnati, O.; "Surgical Mortality from the Standpoint of the Anesthetist," H. W. Kearney, Washington, D. C.; "Nitrous Oxid-Oxygen Analgesia in Dentistry," Edward S. Barber, Chicago, Ill.; "Posture and Muscular Relaxation as Factors in the Newer Conception of Shock," Willis D. Gatch, Indianapolis, Ind.; "Spinal Anesthesia," John Overton, Tulsa, Okla. "Acapnia," E. M.

Sanders, Nashville, Tenn. "Anesthesia, a Full-Fledged Specialty," W. Hamilton Long, Louisville, Ky.; "Anesthesia, Anesthetists and Workmen's Compensation Laws," F. H. McMechan, Cincinnati, O.; "Intratracheal Anesthesia," B. Merrill Ricketts, Cincinnati, O.; with Demonstration of a Portable Field Apparatus by Major Allie Williams, U. S. A., Washington, D. C.

Headquarters, assembly room and exhibits will be in the New Hotel Gibson, in which all the Sections of the Ohio State Medical Association will also meet. An informal organization dinner will be served on the evening of May 4, after which the visiting anesthetists will be the guests at a smoker of the local entertainment committee, headed by Dr. E. O. Smith. Visiting ladies will be entertained by Dr. Nora Crotty and her committee at a reception and theater party.

Anesthetists, surgical and dental, as well as interested surgeons and general practitioners, are cordially invited to attend. For further information and dinner reservations, address

F. H. McMECHAN, M. D., Secretary,
1044 Wesley Ave., Cincinnati, Ohio.

Public Health

NEW STATE RULES FOR THE CONTROL OF COMMUNICABLE DISEASES.

APPROVED AND ADOPTED BY THE ILLINOIS STATE BOARD OF HEALTH, FEBRUARY 16, 1915.

APPLICABLE THROUGHOUT ILLINOIS.

The following general rules and regulations for the report, quarantine, placarding and other means of control of communicable diseases, adopted by the Illinois State Board of Health, under authority granted by the Board in Section 2, Chapter 126a, Revised Statutes, must be enforced by local health authorities throughout the state, and any health or other officer who fails to enforce these rules and *all persons who violate them* subject themselves to a fine not exceeding \$200.00 for each offense or imprisonment in the county jail not to exceed six months, or both.

REPORTS OF CASES.

1. Reports to Local Health Authorities: Every physician who treats or examines, every nurse or attendant who attends, every householder upon whose premises there resides, and every person who has knowledge of any person suffering from, or suspected to be suffering from or afflicted with any of the following diseases (hereafter referred to as "reportable diseases") must immediately report the same in writing, or by telephone followed by a written report, to the local health officer, health com-

missioner or chairman of the board of health, as the case may be:

Reportable Diseases, Class I.—Acute infectious poliomyelitis, Asiatic cholera, bubonic plague, cerebrospinal fever, chickenpox, diphtheria (membranous croup), leprosy, measles, Rocky mountain spotted fever, scarlet fever (scarlatina, scarlet rash), smallpox, typhus fever, whooping cough and yellow fever.

Reportable Diseases, Class II.—Actinomycosis, anthrax, German measles, glanders, hookworm disease, malaria, mumps, ophthalmia neonatorum, pellagra, puerperal septicemia, rabies, streptococcus (septic), sore throat, tetanus, trichinosis, trachoma, typhoid and paratyphoid fever, and tuberculosis of any forms.

If the municipality has no health officer, reports of these diseases must be made to the mayor of the village, president or to the official designated by ordinance to receive the same.

Cases occurring in territories outside of the limits of a municipality must be reported to the person designated by the rules of the township board of health to receive such reports, or if there be no such person designated by such rules, reports must be made to the supervisor of the township or to the county board of health.

Every person to whom reports of cases of reportable diseases are made shall keep a record of each case in which shall be shown date of report received, name, age, sex and residence of the patient, disease, date when taken sick, date when case was terminated and how terminated, name and address of person reporting. This record shall be open at all times to the inspection of a duly authorized representative of the State Board of Health.

2. Reports to the State Board of Health: Every person to whom reports of reportable diseases are made must forward reports of same on forms provided for the purpose, to the State Board of Health at Springfield, as follows:

Reportable diseases Class I must be reported *immediately* upon receipt of notification. If reported by telephone or telegraph, a written report must follow.

Reportable diseases Class II must be reported within two days after the close of the week in which notification was received.

3. Quarantine: Immediately upon receipt of a report of any reportable disease of Class I, the person receiving same, his deputy or duly authorized representative shall visit the premises upon which the case exists, affix the required warning placard in a conspicuous place at all outside entrances of the building, house or flat, as the case may be, and shall inform a responsible inmate of such premises of the rules and regulations which must be observed during the period of quarantine.

Quarantine must be strictly observed according to the requirements set forth in the rules adopted and promulgated by the State Board of Health for the control of these diseases. (Copies of the rules governing each of the diseases of Class I can be ob-

tained on application to the State Board of Health.)

In no instance shall quarantine be terminated without the permission of the local health authorities or the State Board of Health, and then only after full compliance with the rules.

4. Removals: No person having any reportable disease (excepting hookworm disease, malaria, ophthalmia neonatorum, rabies, trichinosis, tetanus and tuberculosis) shall be removed from the premises on which he is found when the case is diagnosed, except by permission of the local health authorities or the State Board of Health, nor shall he be removed from the municipality, township or county in which he is found when the case is diagnosed or in which he is under treatment, except by permission of the State Board of Health.

5. Disinfection: After the recovery, removal or death of any person affected with any of the diseases of Class I or with certain diseases of Class II, the infected premises, contents and inmates must be thoroughly disinfected in a manner and by a method prescribed by the State Board of Health for each of the several diseases.

Disinfection shall be performed by or under the supervision of the local health authorities or their duly authorized representative.

6. Precautions to Be Observed by Physicians and Attendants: Physicians attending cases of reportable diseases shall be permitted to visit their patients whenever necessary, but on leaving the infected premises they must take all necessary precautions to avoid carrying the infection on person, clothing or any article they may have had with them in the sick room.

Nurses or attendants may leave the infected premises only in cases of absolute necessity and then only after taking all precautions to avoid carrying the infection.

An ample supply of towels, basins, water, soap and an approved disinfectant should always be kept on hand for use by the physician and the attendant.

7. Disposal of the Dead: In the event of death from any of the reportable diseases, the body shall be prepared and the funeral shall be conducted in the manner prescribed in the rules governing the several diseases.

Public or church funerals of persons dead from any of the reportable diseases of Class I are strictly prohibited.

When the body of anyone dead from a reportable disease is to be transported by railroad or by other common carrier, the official rules of the State Board of Health for transportation of the dead must be observed.

Rules relating to (a) exclusions from schools and places of public assemblage, (b) delivering of milk and other supplies to infected premises, (c) removal of laundry and other articles from infected premises, and (d) precautions to be observed in the presence of certain reportable diseases in premises

on which milk and other foodstuffs are handled, are set forth in some detail in the enumeration of the requirements for the several diseases.

TUBERCULOSIS SURVEY OF WHITE COUNTY NOW UNDER WAY.

A tuberculosis survey which is promising of some startling relations is now being conducted by the Illinois State Board of Health and the State Tuberculosis Association in White county, this state. Some weeks ago the attention of the State Board of Health was called to the alarming prevalence of tuberculosis among the school children in the town of Enfield in this county. An expert was detailed to investigate the situation and upon his report the present survey was undertaken. Preliminary reports indicate some interesting reading for students of the tuberculosis problem.

STATE HEALTH EXHIBIT MUCH IN DEMAND.

TO BE SEEN AT STATE MEDICAL SOCIETY MEETING IN SPRINGFIELD.

The splendid educational exhibit of the State Board of Health continues to be the center of attraction wherever it is shown.

Within the last month it has been shown in Chicago, two weeks at the Public Health Exposition in the Carter Harrison High School, and later in Joliet, one week.

For the two-week period beginning April 5 it will be seen at the Community Welfare Show at the University of Chicago Settlement, 4640 Gross avenue, Chicago.

Practically continuous bookings have been entered for its showing up to the close of October.

This exhibit will be on display in Springfield at the time of the meeting of the State Medical Society.

HERE'S A SURE SIGN OF SPRING.

"SWAT THE FLY."

Smaller towns keep up the fight.

With the return of spring comes the inevitable renewal of the swat the fly campaigns. The need of such a campaign is, of course, just as urgent as ever; the flies, if left undisturbed, would multiply quite as fast as heretofore, and

so far as can be detected they have not become one whit more decent in their habits. They become less fatal only in proportion to their elimination. Therefore let the fight go on.

This spring the fight on the fly will be more nearly state wide than ever before. To meet the demand from the hundreds of small towns asking for literature for the purpose of stirring up their citizens to active clean-up and fly-eliminating campaigns, the State Board of Health has caused to be prepared a very striking illustrated poster in which is incorporated the latest advice and information on the subject. Several hundred thousand of these posters are now being distributed in small communities throughout the state.

SMALLPOX AT UNIVERSITY OF ILLINOIS.

HUNDREDS EXPOSED—MANY UNVACCINATED.

Smallpox once again has made its appearance among the students of the University of Illinois, affecting the residents also of the university town of Champaign.

It has been quite impossible to ascertain the present vaccinal status of the students in the State school and not much success has attended the effort to promote general vaccination among them.

However, with close cooperation between the

University authorities, the State Board of Health and the local health officials of Champaign and Urbana, it is believed that the spread of the disease will be checked. Orders have been issued to prevent any infection bearer leaving the university town when the school closes for its spring vacation April 1.

DECATUR QUARANTINE MODIFIED.

CITY NOW SEEKING FULL-TIME MEDICAL HEALTH OFFICER.

The scarlet fever situation in the city of Decatur has so materially improved that the special rules of quarantine imposed by the State Board of Health have been modified to such an extent that the city is now back to normal conditions.

The one idea uppermost in the minds of the business men and the medical profession of Decatur at the present time is the immediate necessity of securing a full-time medical health officer. The business interests figure that the \$500,000 business loss sustained through this epidemic would have defrayed the expenses of an efficiently equipped health service for many years.

Reports from other towns of the state indicate that their business men also have seen the wisdom of safeguarding business interests with good health machinery.

DOPE FIENDS



—Courtesy of Mr. Bradley and the Chicago Daily News.

Here's Hoping This Will Be Their Last Debauch.

ILLINOIS STATE MEDICAL SOCIETY

PRELIMINARY PROGRAM ANNUAL
MEETING, SPRINGFIELD,
MAY 18, 19 AND 20, 1915.

*Program Will Be Published in Detail in May
Journal.*

This preliminary list is intended to give the members ample time to study the questions which will be discussed.

SECTIONS 1 AND 2.

1. "Traumatism as an Etiological Factor in Pulmonary Tuberculosis."
2. "The Mechanism of Exhaustion."
3. "Civil War Medicine as I Saw It."
4. "Radium Injections in Chronic Arthritis."
5. "The Administration of Antitoxin."
6. Hypopituitarism Not Associated With Tumors of the Pituitary Body."
7. "The Painful Manifestations of Myocardial Disease."
8. "Focal Infection a Factor in General Pathological Conditions, With Especial Reference to Infection of the Tonsils."
9. "The Identification and Significance of Certain Types of Cardiac Irregularity" (with lantern slides).
10. "The Treatment and Prognosis of Syphilis of the Nervous System."
11. "Ten Years' Experience in the Treatment of High Blood Pressure."
12. "Supporting Measures of Treatment in the Psychoses."
13. "Principles Underlying the Treatment of Septic Peritonitis."
14. "Some Anatomical Considerations in Surgery of the Bile Ducts."
15. "Treatment of Retroversion."
16. "Infections of the Hand."
17. "Management of Injuries of the Ankle Joint."
18. "The Civil Liability of Physicians for Malpractice."
19. "How to Accurately Localize Foreign Bodies in the Chest. The Method of Their Removal." Presentation of Cases.
20. "Comparative X-Ray Work."

21. "Post-operative Embolism."
22. "Modern Surgery of the Epididymis."
23. "Etiology and Diagnosis of Brachial Plexus Lesions."
- 24 and 25 to be announced later.

SECTION ON PUBLIC HEALTH AND HYGIENE.

1. "Recent Practice Relating to City Wastes. Collections and Disposal."
2. "Co-operation in Public Health Work by Adjacent Municipalities."
3. "The Making of a Medical Milk Commission."
4. "Medical Inspection of Employes on Certified Farms."
5. "Some Pressing Public Health Needs in Illinois."

SECRETARY'S CONFERENCE.

1. Address by the President.
2. "The Secretary's Job."
3. "Some Reflections."
4. "The County Secretary and the A. M. A."
5. "A Recording System for County Secretaries."
6. "County Medical Society Problems."

EYE, EAR, NOSE AND THROAT SECTION.

Revised Program.

Surgical Clinics for the Eye, Ear, Nose and Throat Section will be held on Tuesday, May 18, at the St. John's Hospital.

A buffet luncheon will be served by the Springfield Oculists at 1 p. m., at the hospital.

The clinics will consist of the following demonstrations and operations:

- "Tonsil Operations."
- "Alcohol Injections Into Nasal Nerves and Ganglion."
- "Operations on Lacrymal Sac."
- "Radical Mastoid With Burr."
- "Demonstrations of the Labyrinth Tests."
- "Demonstrations of Bronchoscopy and Oesophagoscopy."
- "Demonstration of Suspension Bronchoscopy and Oesophagoscopy."
- "Alcohol Injection of Spheno-Palatine Ganglion."
- "Demonstration of Original Procedure for Maintaining Permanent Interocular Drainage in Glaucoma."

"Intracapsular or Smith Operation for Cataract."

"Middle Turbinecotomy and Ethmoid Exenteration."

Banquet of the Eye, Ear, Nose and Throat Section will be held in the Sun Parlor of the Leland Hotel at 6 o'clock. Tickets will be \$1.50 and a fine program has been arranged.

The scientific program will begin at 9 a. m. on Wednesday, May 19.

1. Woodruff, H. W., Joliet, "Trephining Versus Iridectomy in Glaucoma." Discussion opened by Thomas Faith, Chicago.

2. Wood, Casey, Chicago, "The Oculo-bulbar Seton in the Treatment of Glaucoma." Illustrated by lantern slides. Discussion opened by G. T. Jordan, Chicago.

3. Shambaugh, George E., Chicago, "Complications of Middle Ear Suppuration." Discussion opened by Joseph Beck, Chicago.

4. Blue, Robert, Chicago, "Sympathetic Ophthalmia With Lantern Slides, and Demonstration of Case." Discussion opened by J. Sheldon Clark, Freeport.

5. Edmonson, E. E., Mt. Vernon, "Treatment of Tuberculosis of the Larynx." Discussion opened by H. J. Pollock, Chicago.

6. Starkey, H. M., Rockford, "Influence of Systemic Infections and Toxemias on Eye, Ear, Nose and Throat Condition." Discussion opened by Frank Brawley, Chicago.

7. Freer, Otto, Chicago, "Opening of the Frontal Sinus With Demonstration of the Operation on the Cadaver." Discussion opened by Charles Robertson, Chicago.

8. Mundt, G. H., Chicago, "Syphilis of Internal Ear." Discussion opened by O. J. Stein, Chicago.

9. Cavanaugh, J. A., Chicago, "Non-Suppurative Sinus Diseases in Relation to Eye." Discussion opened by R. J. Tivnen, Chicago.

10. Gradle, Harry S., Chicago, "The Blind Spot." Discussion opened by G. F. Suker, Chicago.

11. Brawley, Frank, Chicago, "Further Consideration of the Tonsils as a Source of Focal Infection." Discussion opened by Carroll B. Welton, Peoria.

12. Friedberg, S. A., Chicago, "Foreign Bod-

ies in the Respiratory Tract." Discussion opened by C. W. Boot, Chicago.

13. Corwin, A. M., Chicago, "Causes for Catching Cold." Discussion opened by A. B. Middleton, Pontiac.

14. Dunn, J. W., Cairo, "Prophylaxis in Progressive Cataract." Discussion opened by A. L. Adams, Jacksonville.

15. Smith, J. Whitefield, Bloomington, "Horse-hair Suture for the Relief of Tension in Glaucoma." Discussion opened by W. O. Nance, Chicago.

16. Suker, George F., Chicago, "Presentation of a Case of Tumor of the Hypophysis After Operation." Discussion opened by Emory Hill, Chicago.

APRIL ANNOUNCEMENT.

To the Members: The Reception Committee wishes to announce that you will find at each railroad station a "free information bureau" for your benefit. It is the intention of this committee to meet all trains with automobiles to take you to any place you wish to go. All members of this committee will be properly "badged" so that no one need be at a loss for the proper direction.

Headquarters will be at the New Leland Hotel and all sessions with the exception of the Eye, Ear, Nose and Throat Section will convene on the second and third floors of the Masonic Temple as per schedule. Registration will be imperative and the "registration booth" will be found in the rear of the first floor of the Masonic Temple. Lunch and dinner will be served at a nominal cost to those desiring such in the basement of the Temple.

The Reservations Committee wishes to announce that it is fully prepared to take care of any and all requests for quarters and will respond promptly to all communications giving you the location of your room or rooms as may be the case, so that your baggage may be delivered at once. This does not include meals, as "eating places" are numerous and easily accessible to both the hotel and the Temple. Please specify the number in your party, the probable length of your stay, and whether you wish hotel or private family accommodations. Do this at once in order to facilitate the work of this committee, as it will be difficult to avoid mistakes in a rush.

The Alumni Committee wishes to report that all members of this society will receive final instructions by letter or return postal about May 1st and that every one who attends will find ready and waiting for him an Alumni Reunion and Banquet. Any and all suggestions pertaining thereto will be most welcome, especially nominations for a speaker.

The Eye, Ear, Nose and Throat Section wishes to announce the following program:

Tuesday, May 18.

11:00 A. M. to 4 P. M.—Clinics at St. John's and Springfield hospitals. Demonstration of interesting cases.

4:00 P. M.—President Welton's address, report of Secretary Beck, and other business of the section. Sun parlor, New Leland Hotel.

5:30 to 6:30 P. M.—Visiting, recreation and grooming.

6:30 to 7:45 P. M.—Banquet, Sun parlor, New Leland.

8:00 P. M.—Address by the President of the Society, Dr. A. L. Brittin. First Presbyterian Church.

Wednesday, May 19.

8:30 A. M.—Continuation of scientific program until finished. Sun parlor, New Leland Hotel.

Address all communication to H. C. Blankmeyer, M. D., Chairman Committee on Arrangements.

APRIL ANNOUNCEMENT.

Meeting of Illinois State Medical Society, May 18, 19 and 20.

To the Ladies: The Entertainment Committee wishes to announce the following program for the recreation of those who attend this meeting:

Tuesday, May 18, 1915.

2:00 P. M.—Lincoln Pilgrimage and parks in automobiles.

4:00 P. M.—Reception and tea at the Art Institute.

8:00 P. M.—President's address, Dr. A. L. Brittin; Oration in Medicine, Prof. E. J. James, president University of Illinois, at First Presbyterian Church.

Wednesday, May 19, 1915.

8:00 to 12:00 A. M.—Visiting hours.

4:00 to 6:00 P. M.—Reception by Mrs. Dunne at the Mansion.

8:00 to 10:00 P. M.—Theater, Majestic or Chatterton.

10:00 to 12:00 P. M.—Dancing, Gold Room, New Leland.

Thursday, May 20, 1915.

All day.—An opportunity to return home and form your opinion of those who tried to entertain you.

NO SHORTAGE AT ABBOTT'S.

Emetine hydrochloride, from being an almost unknown and little used drug, has become one of the most popular. Recent discoveries as to its unquestionable therapeutic values in amebic dysentery, hemoptysis and other hemorrhages, as well as in pyorrhea, have caused an enormous demand for this remarkable remedy, so that it is not to be wondered at that manufacturers are reporting a shortage.

The Abbott Alkaloidal Company is prepared to fill all orders for this alkaloid, which they supply in hypodermic tablets, in ampule form of hypodermic use, in tablets for oral administration, and in a standard antiseptic solution (Boremetine) for use by dentists and physicians in the local treatment of pyorrhea and other affections as above.

If you want emetine, if you want it in a hurry, if you want it right and when you need it, ask for Abbott's, of the trade, or order direct. Complete literature sent free on request to The Abbott Alkaloidal Company, Chicago.

This week for the thousandth time or more, a reason was presented for the consideration of those who desire to escape a disease that is easily preventable.

A Chicago hospital, with a training school for nurses, neglected the formality of having all the nurses vaccinated. An unrecognized case of smallpox came in contact with these nurses and three were taken to the Isolation Hospital suffering with smallpox. All the nurses in the hospital had been vaccinated except the three who contracted the disease. These never were vaccinated and were not required to be vaccinated when they entered the nurses' training school.

When will everybody become wise? Is a training school for nurses that does not require its students to be vaccinated teaching all the nurse should know for her own protection?

It is a little early yet to begin work on your lawn, but is just the right time to get out your fly screens. Give them a good overhauling, and see that they are ready to put in when the fly season opens.

Dead flies do no harm. This means, kill the live ones.—*Bulletin, Chicago Department of Health.*

Auto Sparks and Kicks

Editor *The Automobile*: I would like to know what I can put into gasoline to secure more power?

Salon, Iowa.

VICTOR O. HYNEK.

The Automobile emphatically wishes to discourage the use of chemicals added to the gasoline because they are almost invariably detrimental to the motor.

OWNER NOT RESPONSIBLE.

A motor truck owner was not responsible in damages merely because of its ownership of the truck.

In New York it was recently decided that a motor truck owner, having hired out its truck to another concern, was relieved from responsibility for injuries occurring through the negligence of the chauffeur in charge of the truck. The company owning the motor truck had made an agreement with another company by which the latter was to hire a truck, employ a chauffeur and have complete control over him. The first company, however, was to pay the chauffeur's salary.

While driving negligently a person was injured and sued the truck owner. The court said that the company renting the truck was the proper party to be sued, as it gave the chauffeur his orders and assumed complete control over him and the mere fact that the owner paid his wages, alone, did not make it responsible for the chauffeur's carelessness.—*Diamond v. Sternberg*, 149 N. Y. S. (*New York*) 1,000.

REMOVING FURNITURE DENTS.

Here is a discovery which has been of great use to me when removing marks from furniture, writes a *New York Press* contributor. Wet the part with warm water, double a piece of brown paper five or six times, then soak it in warm water and lay it on the dent. Apply a warm (not hot) flatiron until the moisture has evaporated. If the marks are not gone, repeat the process. You will find this very good, and, if the surface of the furniture is not broken, the dent will disappear.

"Wood alcohol applied with a sponge or cloth is one of the best methods of cleaning either cloth

or leather upholstery," says T. C. Vawter of the local Pathfinder agency. "A mixture of linseed oil and turpentine is sometimes recommended for cleaning leather or grease spots."

FILTERING OLD LUBRICATING OIL.

Lubricating oil that has been used can be made fit for use again in many cases by the simple process of filtering it through a piece of pipe about three-eighths of an inch in diameter and several feet long, bent into the shape of a siphon and filled with cotton wool. The oil is run from one tank or can into another through the siphon.—*Exchange*.

MOTOR TROUBLE.

Fully 75 per cent. of all motor troubles can be traced directly to faulty lubrication and advises his customers to obtain a practical knowledge of the lubricating system so that economical operating costs and satisfactory service may be obtained. Improper lubrication does not always mean inferior oil. One can use the best and not obtain satisfactory results, for the mechanical and thermal conditions of motors vary considerably and a lubricant adapted to one car may not be suitable for another.

A common error made is that of employing too thin an oil, many believing that it must be light to reach the working parts. It is not generally known that the viscosity or body of an oil at atmospheric temperatures is radically different from that at which the lubricant passes through the bearings, etc.

SIT TIGHT OVER THE ROUGH.

When traveling over rough roads the driver should sit in such a position that the feet will not be shaken off the pedals. Otherwise when the clutch is disengaged, as it should always be for a rough spot, and the car allowed to coast, the feet may be jarred off the pedals, allowing the clutch to slam in, thus causing great strain on the gears and transmission mechanism.—*Motor Print*, July, 1913.

HOW TO CLEAN MUFFLER.

The best way to clean the muffler is to disassemble it and clean the parts separately. If this is not done the result will not be satisfactory.—*Exch.*

Society Proceedings

ADAMS COUNTY.

The Adams County Medical Society met in regular monthly session on Monday, March 8, 1915, at Hotel Newcomb.

Meeting called to order by President Bates. About twenty members were present. Minutes of the last meeting were read and approved.

Secretary read a communication from the American Medical Association, calling the attention of the members to two articles, one in July 18 and the other in December 5, 1914, issues of the *A. M. A. Journal*, exposing the fraudulence of Wine of Cardui.

Various other business matters were discussed and disposed of. Luncheon was served at 1 p. m., and this closed the business session.

In the evening, Dr. D. D. Barr, of Taylorville, Ill., gave a public lecture under the auspices of the society at the Cheerful Home on the "Conservation of Vision." Dr. Barr was sent by the Public Health Committee of the A. M. A. and gave an interesting and practical paper, which was readily understood and appreciated by those present. The doctor told the number of school children in the United States and the estimated cost of educating each one. He endeavored to show the Board of Education how much cheaper it is to pay for medical inspection in the schools, and thereby have errors of visions, defective tonsils, adenoids, etc., discovered, than to permit these individuals to drag through a course of education, which is prolonged on account of these deficiencies, and consequently more costly to the board.

The society felt very grateful to Dr. Barr for coming; to the A. M. A. for creating this special work, and to those who showed by their presence that they were anxious to learn something about eyes, etc.

We predict good results from Dr. Barr's lecture, and hope he will visit the society in the near future.

ELIZABETH B. BALL,
Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

*Joint Meeting with the Chicago Roentgen Society,
March 3, 1915.*

1. "Roentgen Therapeutics of Superficial Lesions," Wm. Allen Pusey.

2. "Roentgen Therapy of Deep Seated Non-Malignant Lesions," J. T. Case, Battle Creek.

3. "Roentgen Therapy of Deep Seated Malignant Lesions," G. E. Pfahler, Philadelphia.

Discussion opened by P. M. Hickey, Detroit; Russell Boggs, Pittsburgh.

Regular Meeting, March 10, 1915.

1. "The Results of a Systematic Medical Examination of Employes," Harry E. Mock. Discussion—Wilber E. Post, Theo. B. Sachs.

2. "Limits of Operability of Recurrence of Carcinoma of the Breast," Carl Beck. Discussion—A. J. Ochsner.

3. "Experimental and Clinical Work on Male Sterility," Victor Lespinasse. Discussion—John S. Nagel.

Regular Meeting, March 17, 1915.

Surgery of the Palate (Stereopticon Lecture), Truman W. Brophy. Discussion—P. J. H. Farrell.

At the close of the discussion of Dr. Brophy's paper the members of the society were entertained by stereopticon views and motion pictures of Glacier National Park and the Blackfeet Indians, by Mr. Lawrence D. Kitchell.

Regular Meeting, March 24, 1915.

1. Eutocia by Means of Nitrous Oxid Analgesia. A Safe Substitute for the Frieberg Method.—Frank W. Lynch: Abstract: History of former efforts to obtain painless labor. Chloroform a la reine. Ether. Scopolamine Morphine. Seminars. Shortcomings of these methods. Nitrous Oxid in labor. Old method. New method producing freedom from pain without loss of consciousness. Advantages over the Freiburg method. Method of administration. Report of cases of long continued analgesia. Method is suitable for general practitioner in home of patient. Cost of method. Exhibition of portable instruments. Discussion—J. Clarence Webster, N. Sproat Heaney, Isabella Herb, Carl H. Davis, Henry F. Lewis, Bertha Van Hoosen, Frank Cary, C. B. Reed.

2. Extrophy of the Bladder. Report of Two Cases (Male and Female) Operated Upon by the Method of Maydl.—James J. Moorhead and Edward L. Moorhead. Discussion—J. Clarence Webster, Albert E. Halstead.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting held November 17, 1914, with the president, Dr. Otto J. Stein, in the chair.

THREE CASES OF BRAIN ABSCESS.

Dr. Otto J. Stein showed the specimen from a case of brain abscess. The patient was a man aged twenty-six, who gave a history of having had chronic suppurative trouble with the middle ear for nineteen years, with occasional acute exacerbations, without any unusual symptoms. His last attack occurred in July. He was seen three weeks after the onset of this acute attack and presented the following history and appearance: Family and personal histories negative. Married; one healthy child. Habits good. When he entered the hospital he showed nothing particular except that he was suffering very severely from a headache of the type suggestive of some in-

tracranial complication. There had been considerable discharge from the right ear, which had practically stopped the day before entrance to the hospital. The severe pain developed a day or two before coming to the hospital, and continued to grow worse. He became nauseated, and vomited all the night before and morning of entering the hospital. The mentality was perfectly normal. Temperature about 100.5°. That evening it dropped to normal and remained within a range of a degree and a half. The pulse was rather striking—56 to 64, not very full, but rather weak, and not very regular. The smear from the ear showed a mixed infection of pneumococci and staphylococci, with a few short chains of streptococci. X-ray pictures taken the next morning showed nothing, so far as the ear was concerned, from the speaker's standpoint, but others who saw them thought they gave positive findings. The blood count showed 19,000 whites, with an 85 per cent. poly count. Urine normal. There were no particular eye symptoms; no nystagmus; no irregularity of the pupils; they reacted a little slowly to both light and accommodation, and were equal.

The points he wished to emphasize were: Temperature about normal; subnormal pulse; severe head pain and vomiting.

He diagnosed a mastoid, with a probable brain complication. Operation showed the sinus lying very far forward, presenting immediately with the first chip of the chisel. The middle cerebral fossa also lay very superficially. This made it very difficult to find the antrum, but the entire bone was involved, as in an acute mastoid. The only pus found was in the posterior cells of the zygoma, just around the floor of the middle fossa, and there five or six drops were found, in which the organisms above mentioned were found. The dura was dark red, thick, fleshy-like, about the area of the middle finger-nail. It was not adherent, and no extradural abscess was found. Then the sinus was uncovered and showed no trouble. The antrum was found with difficulty; it was full of granulations and pus, the smears showing the same organisms. The speaker then decided to do a radical operation. He took out the bony posterior wall, and left the wound open, without opening the dura.

The next morning the man was practically free from pain, the other symptoms having also subsided. The temperature was normal. That afternoon at about four o'clock the same condition prevailed, but in the evening he was called up on account of the return of the severe pain; temperature went up that night to 102.4°; nauseated; there was a great deal of gas in the stomach and intestines. Breath very foul. Tongue badly coated. The pulse kept getting slower again, from 70 to 54. Mentality not cloudy.

Unfortunately, Dr. Stein had arranged to go away about this time, but hesitated about leaving this patient, without opening the brain, so decided to operate again. He enlarged the opening formerly made around the posterior root of the zygoma—just at the bend—and found healthy dura. Then he passed the knife through

the dura and into the brain in the temporo-sphenoidal area, back as far as anyone would want to, and could find no pus. He then pushed the knife upward, and found nothing; then anteriorly, and found no pus. He was rather chagrined, and put a small drain in—a gutta percha cigarette drain. The next morning the man was perfectly free from pain and felt comfortable; mentality clear; temperature had dropped to 100°, but the slow pulse still persisted.

Dr. Stein left the city the next day, leaving this patient in the care of Dr. Fletcher and Dr. Jones. During that week the patient's condition fluctuated. A lumbar puncture had been done at the operation, and a very decided pressure found; the same organisms were found in the fluid as in the former smears made. There was also a little blood present in the fluid. A second lumbar puncture was made during Dr. Stein's absence—four or five days after the operation—on account of severe symptoms. The puncture relieved him. Fifteen c.c. of fluid were removed. From that time he seemed to progress very well; however, he always had a little headache and a little temperature. During the following week it never rose above 100.5°. The pulse improved, as well as the general condition. He was apparently on the way to recovery. When Dr. Stein returned he was quite confident of the man's recovery; only now and then he would complain of lancinating, sharp pain in the head. Three or four days later he suddenly got much worse; the pain in the head became very severe; the nausea returned, and symptoms of a severe nature developed, so it was thought another puncture might be a good thing. No indications seemed to be present for opening the sinus. On puncture there was no pressure; but the fluid was a little cloudy. There were no organisms, but some pus cells. This puncture gave him no relief whatever. He continued to get worse until all the classical symptoms of the terminal stage of abscess developed, and he died—about two weeks after he was first seen.

On post-mortem an enormous abscess was found in the right temporo-sphenoidal lobe, with hardly any capsule. The same organisms were found.

The question in Dr. Stein's mind is: While it is easy enough to make a diagnosis of brain abscess with these symptoms, and sometimes even to localize the same, and even to get the consent of the family to operate, still the question is to know exactly *when* to open into a brain. His idea is that this patient, at the time of operation, was developing a brain abscess; the brain was in a state of red softening. He does not think he infected the brain. He believes he operated too soon. If he had operated later—say, on his return to the city, and at the time the last lumbar puncture was made—he probably could have opened the abscess and drained it, with recovery of the patient. However, he feels that instead of tapping the spine for the third time he should have sought the abscess, and it no doubt would have been found then. That, he thinks, is the most important thing about the case, and he wished to hear the experience

of the other members in regard to the time of opening a brain abscess.

DISCUSSION.

Dr. J. R. Fletcher would be inclined to open these abscesses as soon as he could make a diagnosis. In the case reported, the speaker was called to the hospital during Dr. Stein's absence from the city, because the man had developed a state of delirium. The blood pressure had increased very much. For this reason another lumbar puncture had been performed, after which he improved so much that it was thought he would recover.

Dr. Joseph C. Beck was very much astonished that Dr. Stein neglected to follow the modern method of treatment of brain abscess, which is to open the dura and wall off the area, and let the abscess, if it will, progress to the surface; then open in the second stage, about a week or ten days after.

Dr. J. R. Fletcher said he was not willing to accept any man's method as a modern method. All methods are modern methods.

Dr. Stein asked Dr. Beck if he meant that he should have let an exudate form there, to which Dr. Beck replied in the affirmative.

Dr. Stein said that he had presented the specimen and described the case in order to get the opinions of the members. He was glad to hear that Dr. Fletcher has a definite idea as to what he would do with a case of brain abscess. He would admit that he had never walled one off. He has opened them in cases where he has found the abscess, and has not had bad results. Others probably have had the same experience as he. Of course, he has had fatal results in cases where he has found the abscess, also, even if well walled off. It was interesting to know the attitude of the profession, and it was probably also of value.

ETHMOIDAL EXENTERATION.

Dr. Charles M. Robertson said that exenteration of the ethmoids is an operation to be performed in the type of cases in which local treatment and local operations have failed. There are certain anatomical defects in the nostril that are prone to produce ethmoiditis, prominent among which is the type in which the septum is deflected toward the side affected, either by a bowed septum or a thickening of the upper plate—that is, of the ethmoidal vertical plate. Many cases have come to his notice of deflections of the septum, where submucous resections have been made, and these submucous resections have been limited to the quadrangular cartilage and the lower part of the bony wall of the septum. Nearly all of these cases have a thickening of the bony vertical plate of the vomer as high up as the cribriform plate, and these are cases in which, if operated on, resection should be made to the cribriform plate.

There is another type in which the cells in the middle ethmoid bone are very large. There is a cystic degeneration of the middle turbinate. These ethmoid cells are not present originally, but are produced by some inflammatory condition in the tissues, and the continuation of the ethmoid cell into the middle turbinate body. This probably is a sero-mucous inflammation, and the cells are produced by an expansion of a cell. Some of these cases go on to suppuration, but not all. He has seen several cases in which the turbinate appeared practically normal, only that the cells in the turbinate had produced an enlargement of it sufficient to push the bony wall of the septum

over and make it deflect on the other side. These are cases in which, if the turbinate be resected, the resiliency of the wall of the septum will spring back into place. He has seen cases of this type operated on by submucous resection, and the turbinate left in place. That is a wrong thing to do.

Dr. Robertson wished to bring the following operation to the attention of the members: The ethmoid cells are exenterated and the middle turbinate saved. The operation is done after the style of Mosher, except that Mosher goes in in front, on the inner surface of the middle turbinate, at its anterior end, and breaks through into the fronto-ethmoidal cells. Then he tears back through the ethmoid cells and tears away the middle ethmoid bone, destroying the superior and middle turbinated bodies in one piece. With the operation to which Dr. Robertson referred the entrance is made through the bulla ethmoidalis, which allows one to get the lower middle ethmoid cells. Following back from this you exenterate the posterior ethmoid cells quite easily. Then, one can bring his angular curet forward well towards the anterior ethmoid cells. In these cases, after exenteration of the ethmoid is completed, the middle turbinate body is fractured at the top and pushed over into the space which was ethmoid cell. He has operated on several of these cases, and was watched them to see if atrophy of the lateral mass of ethmoid followed, and to see what effect the operation had on the nose, regarding ventilation, and it appealed to him as of sufficient importance to warrant reporting. In this way the ethmoidal cells can be absolutely obliterated and the turbinate saved, which is a very important point in the physiology of a nostril.

DISCUSSION.

Dr. O. T. Freer said that the entrance into the ethmoidal labyrinth through the bulla, suggested by Dr. Robertson, a way also advised by Boenninghaus and Vacher, is a good one and often better than the route through the agger cell of Mosher, for this cell is sometimes absent or unduly thick-walled, while the bulla is frail and easy to see when the middle turbinate has been resected.

The chief characteristic of chronic ethmoiditis is the formation of polypi. When superficial, they do not affect the skeleton of the ethmoid region. In the common deep type of ethmoiditis, however, where the polypi form within the cells, they destroy the cell walls by pressure absorption, and the entire lateral mass of ethmoid cells usually degenerates into a polypoid mass, with occasional thin plates of bone remaining as vestiges of the cell walls so that a probe or curette enters the widely open sinus in the course of the operation. In such cases the bulla, the agger cell, the processus uncinatus, the middle turbinated body, all of the landmarks are gone, and the operator has to trust to the mental picture of the ethmoid region anatomical study has given him, and to his fine sense of touch, which tells him when his curette has gone beyond the region of degeneration and has reached healthy, hard bone. This bone, in the outward direction, may be the firm walls of sound ethmoid cells, or else the degeneration may have reached the lamina papyracea of the orbit. Considering the frailty of this plate, the greatest caution is necessary in approaching it, and Dr. Freer had been told of two cases where it had been penetrated. Very gentle management of the curette and punch is needed to insure safety.

Upward, the curette may have to travel to the tegmen or cranial roof of the lateral mass of ethmoid cells. The cribriform

form plate is not in danger if the curette be kept outside of the line of the vertical plate that bounds the ethmoid cells inwardly and ends in the middle turbinate below, as shown by P. Watson Williams (*Journal of Laryngology*, May, 1914).

Where no polypoid degeneration of the ethmoidal labyrinth exists, Mosher's landmarks and the bulla are easily found.

Resection of the perpendicular plate of the ethmoid bone to the cribriform plate, as suggested by Dr. Robertson, Dr. Freer thought dangerous. The perpendicular plate often has to be cut away to within one-half inch of the cribriform plate, but to remove it up to the latter would involve a chance of meningitis because of the intimate lymphatic connection between the nasal lining and the dura in this region.

He reported an operation for extensive disease of the ethmoid, in which he unfortunately entered the peri-orbita. He took out several pieces of what he thought were strange-looking polypi, and found that they floated, which showed him that it was peri-orbital fat he was removing. In this case, if there was any hard bone on the orbital side of the ethmoid cells, he did not strike it. Either the disease had destroyed it, or there was a dehiscence. The patient had a very violent reaction, but recovered.

In regard to cleaning out the ethmoid cells, he has done quite a number of these operations. He goes through the bulla and bites an opening upwards and backwards to the base of the skull with forceps. Then he takes the frontal sinus rasp, with the smooth surface toward the orbit, beginning in the posterior ethmoid cells, coming forward and rasping out the ethmoid cells up into the frontal sinus. He considers this method very simple and thorough.

The rule of going into the nostril until you find a hard lamina of bone is a dangerous one to pursue unless you go anatomically, because the lamina papyracea is often dehiscent, as Dr. Loeb said, and one is liable to get globules of orbital fat. He has seen cases in which the lamina papyracea was so thick that a steel curette would not go through it. Individual peculiarity comes into account in these cases.

He would not attempt to remove the septum as far as the cribriform plate. He would expect to remove it as far as possible toward the cribriform plate, however. There is a danger of meningitis, just as there is a danger of meningitis in any operation on the nose. Of course, the nearer you get toward the cribriform plate, the more you subject your patient to risk.

In examining skulls, one very often finds large cavities in the turbinates, both in the middle and inferior. Where there is much disease, the middle turbinate is still pathological, but you save it with the idea that it will at least do some of its function after the disease has settled down. If it does not, you can easily take it out afterwards, because it is a painless operation, and only takes a short time. After the cells have been removed and the turbine fractured, there is still some space where the cells were, so that if there is a continuation of pus formation, it can easily be mopped out.

THE USE OF PITUITARY EXTRACT AS A COAGULANT IN SURGERY OF THE NOSE AND THROAT.

Drs. Harry Kahn and L. E. Gordon read this joint paper. The rhinologist has long sought a harmless, efficient drug that will control the hemorrhage during and following operations on the nose and throat. Calcium salts have been used, with indifferent success. Blood serums, either freshly prepared from the human or from the rabbit or horse, have given reliable results, but have the disadvantage that they may produce anaphylaxis. Adrenalin only produces its results on the mucous membranes, and then only when directly applied. Citelli (*Zeitschrift für Laryngologie und Rhinologie*, 191, VI, 523) reported on the use of pituitary extract for the control of hemorrhage fol-

lowing turbinectomy, sinus operations and tonsillectomy. Following his suggestions, the authors have used the drug, with universally good results. The blood loss during and after turbinectomies was slight—in fact, the operation was almost bloodless. The blood loss following tonsil operations was greatly reduced. Not a single untoward result has been noted in upwards of over one hundred cases operated, which could be attributed to the drug. The action of the drug did not seem to them to be wholly explained by its action on the walls of the blood vessels, as assumed by most writers, hence they were constrained to look further, and found that the coagulation time was reduced to from one-third to one-half or more after the hypodermatic administration of pituitrin.

The authors also made a study of the blood pressure before and after administration of pituitrin, in the hope of adding something to the knowledge of the blood pressure of children in normal health, and also to study the effect of the drug on the blood pressure. The systolic and diastolic pressures were taken before and after administration by the auscultation method, a sphygmomanometer of Stanton, with the modified cuff for children, as suggested by Gerstley, being used, with the following results: Systolic pressure was increased in 55.31 per cent. of the cases, reduced in 36 per cent., unchanged in 8.5 per cent. Diastolic pressure was increased in 35.5 per cent. of the cases, reduced in 35.5 per cent., and no change in 29 per cent. Pulse pressure was increased in 61 per cent. and decreased in 39 per cent. of the cases.

DISCUSSION.

Dr. L. E. Gordon said the principal point that they wished to bring forth was that the extract of the posterior portion of the hypophysis when injected influences the coagulation of blood by decreasing its coagulation time. The coagulation time is decreased within fifteen minutes, and it remains so for over twenty-four hours. What causes this coagulation? Francini, in 1910, while working on metabolism with pituitrin found a lessened amount of calcium in the body tissues, and a greater amount of calcium thrown out into the blood stream. This point may be worth further consideration.

The injection of pituitrin has been found to practically stop bleeding in almost every case. A great deal more work can be done with pituitrin to prolong the effect of epinephrin. There is no need to fear capillary bleeding three or four hours after its use. With the use of pituitrin it is possible to do more work in the office, without being afraid to send the patient home. The speaker, together with Dr. Kahn, recommended the use of this drug to the members as a preoperative procedure.

Dr. A. M. Corwin thought the action of pituitrin, as well as thyroid extract and others, is partially due to its selective and safe action upon the unstriated muscles in the intestine, stimulating their contraction and their tone, and, owing to its affinity for the uterus, it bids fair to take the place of ergot. The essayists should be commended very highly. This kind of careful analysis of a serious case is done in too few instances.

With regard to the question of the heightening of blood pressure, he was very much impressed with the case of a woman, fifty-five years of age, with well-marked symptoms and findings of Bright's disease, in which there had been uncontrollable hemorrhage from the nose, an epistaxis that had defied packing and all sorts of things. This patient's blood was just like water, even thirty minutes or an hour after being drawn off. There was apparently no coagulation at all—or only a very faint sign of it. Blood pressure was 200. After very

depleting hemorrhages her blood pressure had fallen, before the speaker saw her, to 100, and this had been maintained for a number of hours—perhaps six—in which the tests had been made. He injected pituitrin and the blood pressure came down within the next few hours, without any further hemorrhage to account for it, to 140, and there it remained. In that case the urinary findings were those of a contracted kidney. Her pulse, however, became firm and strong, increased in force, and increased in strength, so that the cardiac stimulant was very apparent, and the question was whether this effect was due to the contraction of the vessels, which we are told occurs, except in those of the kidney, where dilatation takes place, causing diuresis.

In our work with the drug we give injections every six or twelve hours. It is arbitrary. Dr. Gordon's observation would seem to give us at least the opening door to this question, and twenty-four hours, perhaps, would seem to be often enough to make the injections.

Dr. J. Holinger said that if the discussion were limited to pituitrin, he had nothing to say; but if the members would permit him to say a few words on stopping of hemorrhage, he would like to draw attention to a series of experiments published in the *Correspondenzblatt für Schweizer Aerzte* a few months ago, from the clinic of Professor Kocher in Bern. Fonia, an assistant of Professor Kocher, has studied the question of coagulation of blood and found that the blood plaques cause the coagulation by means of a ferment contained in them and freed by their destruction. Therefore, he separates the plaques from the rest of the blood, and prepares them so that they keep. They form a brownish powder called coagulen. This is pressed against the wound by means of a piece of gauze and parenchymatous hemorrhage and small vessels stop bleeding at once. Coagulen is in the open market now.

Dr. S. A. Friedberg has been more concerned with the post-operative use of pituitrin. He has been using this drug at the County and Presbyterian Hospitals for a little over a year, and his results have been uniformly good, with the exception of two cases, where there did not seem to be any beneficial result from its use.

Dr. Robert Sonnenschein said that during the last five or six months he has had pituitrin used as a prophylactic measure fifteen to thirty minutes before operating, the dose being one-half c.c. to children, and one c.c. to adults. It would perhaps be unfair to say that it was merely coincidental, but in every case in which it has been used the hemorrhage has been very slight.

Dr. H. S. Gradle said that the use of pituitrin cannot be limited to the practice of rhinologists alone. He used it in the gluteal muscle before resection of the tear sac, and did not think it was coincidental that he was able to make a very clean dissection, with practically no bleeding at all. He has never seen a tear sac operation where the field was so free from blood as in that case. In addition, he believes the drug will be found of value in operations for hemorrhage glaucoma.

Dr. Otto J. Stein asked if any of the cases reported had been followed long enough to know if there was any bleeding some time afterwards? That is, if there was any recurrence of hemorrhage?

Dr. E. H. M. Griffiths said that pituitrin is his hobby. He has used it a great deal in abdominal surgery during the last four or five years. Speaking about hemorrhage in operations, he thinks that Cesarean section is the most bloody operation, but by the use of pituitrin he has been able to perform it with very little loss of blood. He uses pituitrin in Cesarean section in the following way: One c.c. is injected about half an hour before operation. At the time the patient is put on the table she is given another c.c., or 15 minims. Immediately following the operation another c.c. is given. This may seem an awful dose, but he does not think so. This is repeated at intervals of four to eight hours following the operation. When pituitrin was given in this way there was practically no hemorrhage, temperature or shock; it was never necessary to catheterize the patient. However, he and his associates have been working on a different principle. They know that pituitrin does stimulate the involuntary muscles. Sajous claims

that it acts by its stimulation of the adrenalin system, and that that is the reason for the rapid coagulation of the blood. Dr. Griffiths has also used pituitrin in other laparotomies, with wonderful results.

Regarding its effect on blood pressure, he has found where there is hypo-adrenalism, pituitrin has increased the blood pressure. Where there is a decrease in adrenalism, it decreases it, and there are contraindications for the use of pituitrin.

Citelli found that pituitrin acts better while operating on an organ where the blood vessels have a well-developed musculature. Therefore, he said, in operating on the lower turbinate, where the musculature of the blood vessel is better developed, the constriction is greater and the effect is better than when operating on the septum. He asked if this observation was borne out by the essayists?

Dr. Kahn replied in the affirmative.

Dr. Gordon, in closing the discussion on his part, said: Their desire had been to impress upon the members the coagulation power of pituitrin.

Francini, in 1910, while studying body metabolism as influenced by the ingestion of the extract of the posterior lobe of the hypophysis, found that there was during its use a decrease of the magnesium and calcium salts in the tissues, while there was an increase of these salts in the blood stream. The speaker mentioned these facts to show how pituitrin probably acts.

Dr. Kahn, in closing the discussion, said that he hoped to continue this work, in association with Dr. Gordon, and bring a further report to the Society.

Pituitary extract can be used as a prophylactic in operative procedures in those cases where hemorrhage is expected. You may get cases in which you will have to use blood serum following pituitrin. They did not claim that it was infallible. They only claimed that the blood does coagulate more rapidly under pituitrin.

As to the use of the drug in hemophilia and diabetes, he could not report about that at this time. His own experience with hemophilia has been limited to only one near-hemophilia case, but Dr. Gordon had one case in which the coagulation time was fifteen minutes, brought down to three minutes. Those are the only cases of hemophilia of which he knows that the drug was used.

Answering Dr. Pierce's question, he has never used atropine or scopolamine with pituitrin.

Dr. Holinger's paper on "Tuberculosis of the Larynx" with discussion will be printed in a later issue of the JOURNAL.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

A regular meeting was held February 15, 1915, with the president, Dr. Richard J. Tivnen, in the chair.

NEW SPECULUM FOR OPERATIONS ON THE LACHRYMAL SAC.

Dr. Clark W. Hawley stated that the instrument he had designed was not of necessity absolutely new in all respects, but an improvement upon the old ones upon the market. In using the old specula he found himself very much cramped for room and also that the unnecessary parts of the same were in the way while operating, so he conceived the form of the instrument which he presented, saying it was very much simplified, and on account of the curvature given to its blades it gave an abundance of room in which to work.

He has used the instrument a number of times himself with entire satisfaction and also loaned the same to his colleague at the Postgraduate, who also used it and said that it answers the purposes fully,

so that he feels it worth while to present it to the society.

Dr. D. T. Vail, Cincinnati, exhibited a speculum he had designed which is suitable for the Axenfeld operation where the incision is made boldly down on the bone, showing the lachrymal sac alongside the nose through the periosteum, making a mastoid incision down on the bone, and with periosteotome stripping off the periosteum toward the lachrymal sac until the periosteotome drops into the lachrymal fossa. The instrument has been in use five years, during which time he has employed it a number of times and finds it indispensable. With this speculum one can see the depths of the wound and lachrymal groove, and it controls hemorrhage, which, in the extirpation of the lachrymal sac operation, is in this operation of no consequence.

AQUEOPLASTY, OR THE ZORAB OPERATION FOR GLAUCOMA.

Dr. Casey A. Wood stated that about four years ago Mr. Arthur Zorab, of Southampton, England, conceived a plan to insure effective and continued drainage of the anterior chamber by inserting a loop of silk into it, bringing the cut ends through a scleral, or sclero-corneal, opening and imbedding the threads beneath the conjunctiva. In that situation they probably act as a sort of scleral seton.

He had an opportunity of seeing, in Oxford last year, several cases operated on by Mr. Zorab, and hearing them discussed by members of the Ophthalmological Congress.

The length of time that had elapsed since operation in these patients varied from three years to three months. In every instance the tension of the eyes operated on, the central and peripheral vision and the progress of the case appeared to be entirely satisfactory. Each patient stated that his eyes had, since the operation, been free of irritative symptoms and that the vision had either improved or had been no worse.

While the cases so far reported are numerically insufficient to make a profitable comparison of the merits of this procedure with the Elliott, Lagrange or other operations, the status of which is now definitely known, yet the experience of Zorab, as well as the character of the operation, appeals to him sufficiently to induce him to attempt it in three cases of absolute glaucoma—in eyes which, of course, are blind.

Dr. Wood then detailed the histories of these two cases which he exhibited before the society:

The mydriatic which, following Edward Jackson's suggestion, the writer sometimes uses for diagnostic purposes in doubtful forms of glaucoma, in half an hour raised the tension in both eyes to quite +2. It fell to nearly normal under the influence of massage and esserine ointment. On December 17, 1914, a Zorab operation was done on the left eye and an Elliott trephining operation on the right. Healing proceeded without incident in both eyes except that quite recently the patient has had a conjunctival infection of the left eye. When she was last seen this had practically disappeared. Upon that occasion the tension in both eyes was normal and, most satisfactory of all, the central vision of the poor eye had improved to 20/200 and Jaeger XII in the left eye vision

had risen to 20/25 + and Jaeger I. There is a small hernia of the iris in the right eye, a circumstance which may be regarded as rather helpful than otherwise to a continued decrease of vision. The edema of filtration areas in all four eyes seemed satisfactory.

The operation of aqueoplasty as performed by Zorab consists in making, preferably at the insertion of the superior rectus, a sort of preliminary tunnel beneath the conjunctiva to the sclero-corneal margin, somewhat like the preparatory flap in the Lagrange or Elliott operation. A keratome is then passed into the anterior chamber and slowly withdrawn. A loop of wet, sterile, number 1 braided white silk thread about half an inch long is then introduced, by means of a special modified iris forceps, into the chamber through this opening. Careful withdrawal of the forceps leaves the loop of silk plainly lying on and extending half way over the iris of the medium sized pupil. The margins of the conjunctival wound are then stitched together.

The only modification the writer has to suggest in the technic of this operation is perhaps of some importance, because it lessens the difficulty of introducing the loop of silk. Instead of cutting the suture of the length that is to be preserved *in situ* the suggestion is to make the silk ends quite long, that the loop be first introduced and the suture cut off to the required length just before the conjunctival wound is stitched. While the introduction of the silk is quite easy the subsequent withdrawal of the forceps without disturbing the position of the loop is not always readily accomplished.

Once properly carried out, the procedure is not followed immediately or, as far as observed, later, by irritative symptoms or by inflammatory reaction. The healing takes place quite readily and the effect upon the tension of the eye continues to be quite marked.

The writer is not yet in a position to advise this operation in cases where the eyesight of the patient is at stake. It is for this reason that he has so far confined aqueoplasty to practically blind eyes.

DISCUSSION.

Dr. Edward Jackson, Denver, Colorado, stated that a slight modification of the operation under discussion was also proposed by Stephen Mayou, who suggested putting a knot on his thread to keep it from slipping into the anterior chamber, and before that, as he recalled, something of the kind had been done by Rollet for corneal suppuration. He supplemented that by introducing a thread into the anterior chamber and did the same operation as a temporary measure for acute glaucoma, but with all these different propositions the operation seems to the speaker to be very much of an experiment, and one that he would not care to repeat. The greatest difficulty with all attempts to leave a permanent opening in the sclera has been a tendency in some cases for it to close. He has seen cases that have behaved nicely. The first case he operated on (Elliott operation) he saw a few months thereafter and the result was satisfactory. In the other cases there seemed to be a very strong tendency for the scleral opening to close or to become so overloaded with new-formed connective tissue that it no longer served the purpose of drainage; it would be flooded in that position and there would be a tendency to aggravate the irritation, increase the amount of new tissue thrown out, and in that way lessen the permanence of the result.

Dr. Derrick T. Vail, Cincinnati, reported a case of re-

tained silk thread drainage from the vitreous chamber to Tenon's lymph channel for the relief of glaucoma.

Mr. F. J. R., aged 75 years, consulted him on June 17, 1907, on account of blindness and pain in his right eye. The history in brief was that three months before, he was seized with severe pain and inflammation of his right eye, soon followed by total blindness. One month before the speaker saw him he called on another physician who diagnosed glaucoma and advised enucleation. Pupil was dilated and irregular from posterior synechia. There was deep ciliary injection of the left over-sight from fulminating glaucoma. The anterior chamber was partly filled with blood, and the posterior surface of the cornea showed blood stains. Vision *nil* tension + 3; glaucoma absolute. Three days later Dr. Vail applied an antiseptic silk thread seton to drain the eyeball in the equatorial region. The idea was to stimulate a permanent posterior sclerotomy or to afford a permanent drainage from the vitreous chamber to the space enclosed by the capsule of Tenon. The operation was very simple: a full-curved, sharp, short and broad needle armed with No. 10 black silk plaited thread on the whipcord order, was passed through the conjunctiva in the equatorial region of the eyeball in the lower outer aspect of the globe, made to pass a short distance (about 10 mm.) under the episcleral tissues, then boldly through the sclera in the region of the ora serrata through scleral, choroid and retina quite well into the vitreous chamber and then passing out again through these tissues to emerge so that the space between the scleral openings was about 8 mm. in length. The needle was then introduced through the emergent conjunctival opening and allowed to glide backward under the episcleral tissues for a distance of about 10 mm. before final emergence. The thread was drawn so that the end just disappeared in the entrance of the conjunctiva and clipped so that the other end disappeared in the place of final emergence, and this loop of coarse thread with its two ends leading from the vitreous chamber into Tenon's space was left to drain the hydrops of the vitreous if it would do so.

There was little or no reaction from the operation itself, and no evidence of hemorrhage. The tension was relieved at once and remained so. All signs of redness disappeared in a short while and the hyperemia likewise disappeared. He watched the eye for three months and finding the result permanent and desiring to get rid of that thread which he feared to allow to remain with the patient away from his observation he decided to remove it. This he did on September 19, 1907, three months after its insertion. He next saw the patient April 16, 1908, ten months after the operation. The note in his case book was short and convincing: "Tension normal."

He has never repeated the operation for he confessed he feared it might be considered dangerous practice, for such a thing as leaving a permanent stitch in the eyeball was unheard of at that time, but now that the measure is recognized as being valuable and safe, he feels that his experience is worthy of bringing to the attention of the members. He called attention particularly to the greater advantage to the patient in having the drainage leading into Tenon's capsule where there exists a large anatomical reservoir with backward flow of lymph as compared with the thin conjunctiva near the cornea poorly supplied with efferent lymph channels of any size in comparison, and to point out the element of safety in post-operative infection as compared with sub-conjunctival drainage at the limbus.

Dr. Lee W. Deane, Iowa City, stated that some eighteen years ago Fuchs produced dilatation of the pupil to test for chronic glaucoma, and in the last eighteen months he had had one case in which he suspected glaucoma, dilated the pupil with euphthalmin and homatropin without any increase of tension, and several months later operated for acute glaucoma.

Dr. Derrick T. Vail spoke of euphthalmin and stated he saw it used fifteen years ago by Herman Knapp of New York. He did not know then why Knapp suspected glaucoma, but after the use of euphthalmin the disease was evident. Since then the speaker had used this mydriatic as a diagnostic measure in ophthalmic disease.

Dr. H. W. Woodruff, Joliet, pointed out that iridectomies

in cases of glaucoma were sometimes said to be more efficacious if some of the iris was left in the wound. In fact, the iris was sometimes drawn up and left in the wound purposely to promote drainage. It would seem to him that if that operation was justifiable, certainly placing a thread in the anterior chamber was even more so.

Dr. Harry S. Gradle stated that Alt two years ago showed sections of eyes that were dilated by his method and the Elliot trephining method. The operation was successful where the eye was removed at autopsy, and unsuccessful where the eye was removed with increased tension. He proved conclusively that the beneficial effects of the trephining operation were due to the ingrowth of pigment epithelium into the lips of the wound; that the fistula was kept open by the pigment epithelium and not by the effects of the aqueous alone, consequently this fistula was always a menace to the patient. As long as there was filtration of the aqueous humor the patient was exposed to the danger of a low infection. Mueller's statistics, taken from 360 cases, showed two per cent. infections occurring within two years after operation. Perhaps the percentage would increase as the number of years during which the operation would be done increase. He did not know whether the objection would hold in the Zorab operation or not, but the objection raised to iridectomy was a blotting out of the visual field for some unknown reason. The same thing happened after trephining. He had had this happen in three cases. The filtration operation should be attempted first.

Dr. Wood, in closing, said he had never seen the stitch move from its primary position. Patients were liable to have infection following both the Lagrange and Alt operations. Euphthalmin was not original with him. The ophthalmologist should not fail to use such a valuable means of diagnosis in doubtful cases.

Dr. William H. Wilder said the profession was indebted to Dr. Edward Jackson for the method of determining whether or not glaucoma would develop in doubtful cases. He himself had used the method for many years. There were some eyes, however, that would become glaucomatous on the slightest provocation, while with other eyes the ophthalmologist could do what he pleased with them and they would never become glaucomatous.

Dr. William E. Gamble presented a case of coloboma of the lens simply on account of its rarity.

Dr. George F. Suker called attention to three cases which the members saw last year:

After a prolonged study of the case of a young man upon whom he operated he had come to the final conclusion it was diploic dermoid.

The other two were pituitary cases, one in a young girl, and the other in a woman, aged thirty-five years. Both were still alive. One of them had improved very much. In the case of the young girl he desired suggestion and advice in regard to getting rid of a cerebral hernia which the patient now has. In the woman of thirty-five the x-ray plates showed a decided increase in the pituitary body and the Sella turcica. In the right eye vision was 20/20 in the direct axial line. She had bitemporal hemianopsia in the right eye. She was operated on January 16 of this year. Between January 16 and February 8 he found the field had increased in the right eye, but she had only light perception. There was choked disc of 3.5 to 4 mm. in the right eye. The left eye was atrophic, and a diagnosis was made by another practitioner of optic neuritis.

The young girl had never menstruated and her genital organs were of the infantile type. The woman, thirty-five years of age, menstruated at the age of twelve, continued to do so for six years thereafter, then menstruation suddenly ceased and she had not menstruated since. This patient had the characteristic bitemporal headache and the dizziness which accompanied it.

After detailing the present condition of vision Dr. Suker stated that as soon as he got permission he was going to do a sub-temporal decompression, because the x-ray plates showed such an extensive involvement of the pituitary body that the condition could not be dealt with by the transphenoidal method.

In the case of the young girl, to get rid of the cerebral hernia, he detailed an operation which he contemplated doing.

If ophthalmologists were a little more particular in differentiating between choked discs and simple optic neuritis, they would find more cases of intracranial pressure, pituitary or otherwise, than they do at the present time.

Dr. Derrick T. Vail, Cincinnati, said the benefit which had followed in one of Dr. Suker's cases was due solely and entirely to the decompression, taking off cerebral pressure by having a large opening made in the skull; but the real disease he still believed from the symptoms presented was in the pituitary body, and he did not know whether subtemporal decompression which Dr. Suker contemplated doing would accomplish much or not.

Dr. Lee W. Dean, Iowa City, Iowa, stated that about six or eight weeks ago a patient came under his observation with pituitary hypertrophy. The x-ray showed a shadow indicative of a large tumor, with atrophy of the optic nerve. The patient was barely able to see to move around. The pressure seemed to be local. There was no evidence of general pressure. He followed Harvey Cushing's advice and did pituitary decompression through the sphenoid. When he incised the dura the tumor bulged out, and it extended down so that it could be seen in the nose, and strange as it might seem, by very careful observation it was shown this man's vision had returned to a certain extent. The diagnosis proved to be sarcoma, and the man at present, eight weeks after the operation, was practically comatose.

Dr. J. B. Loring stated in reference to choked disc that the case he expected to present illustrated what Dr. Suker was endeavoring to impress upon the members. The patient was referred to an ophthalmologist on account of headaches for refraction. The patient was refracted. She had compound myopic astigmatism and was informed she should be refracted within a year. The patient this time went to one of his co-workers and a re-refraction was made, and without studying the fundus, he took it for granted this had been done previously. On examining the fundus Dr. Loring found she had all the characteristics of a typical choked disc, in contradistinction to optic neuritis, a case of which he had hoped to present. In this case there was luetic infection. Vision had not been impaired within the past year, but the field was contracted to a considerable degree. Central vision remained acute.

The case had symptoms from the neurological side for which he was indebted to Dr. Mettler. There was a reduction of power in the arm and left leg; she had increased patellar tendon reflex on that side, and if anything, it was diminished on the other side. The pain was on the right side of the head.

INTRANASAL DRAINAGE OF THE LACHRYMAL SAC; A SIMPLE METHOD.

Dr. J. A. Pratt, Aurora, Ill., stated that the intranasal drainage of the sac places the eye in the only logical method to utilize the normal drainage of the conjunctival space, and the man who suggested this certainly made a tremendous stride in the right direction, for he may have made it possible to relieve nearly all the ills of the lachrymal sac.

The West or any other operation that establishes a drainage into the nose intranasally fulfills this requirement, but they are difficult to do.

December 1 he operated on W. B. for a purulent dacryocystitis of one year's standing, which had been treated by one of our specialists with the usual routine of probing and washing. The sac was opened and an antrum trocar was pushed through the nasal wall of the lachrymal fossa. Pus disappeared from the conjunctival sac and has not been present since, although the eye shows tears standing in it. The inflammation and disagreeable sensation are gone. This showed the benefit of surgical drainage.

After referring to the anatomy, Dr. Pratt stated that in the West and other operations of the sac the operator first destroys the muco-periosteum, the bony

wall of the fossa, and then opens the nasal portion on the sac. In this simple method the action is just reversed, but of course the result is just the same.

Those who are not trained to the use of the bur in their work do not realize how hard it is to cut soft tissue unless it is held against something hard. One can remove the bony covering of the lateral sinus without injuring the sinus wall, so in using the bar in the lachrymal sac it only cuts where it is held against the bony wall.

Under cocain anesthesia the same technic is used inside the nose as in resection of the septum. The eye is cocainized and both puncta dilated and canaliculus probed to the sac. The sac is now injected with ten per cent. cocain in epinephrin. If both canaliculi are patulous and neither has been cut, it is preferable to use the upper, as the healing leaves the upper part of the lachrymal apparatus in its normal condition. If the lower has been slit, the opening into the sac can be enlarged from the old cut.

A canaliculus knife is now passed through the upper puncture down to the bottom of the sac, the handle is now turned down and an opening made in the upper part of the sac at least five millimeters long so that a number 14 Theobald lachrymal probe can be passed through the sac.

The cotton is now removed from the nose, and the nasal clamp is placed so as to protect the septum from the bur. The bur is now passed to the bottom of the sac and the shaft of the bur at 45 degrees and pointing toward the opposite side of the chin. The engine is now started and by gentle pressure a hole is burred into the nasal cavity. The hole is now enlarged up and down and when the bur stops turning it is removed. The bur should never be placed or removed while in motion. The nose is now inspected and any shreds are nipped off with the cutting forceps.

The sac is washed out, clots removed and a superficial suture is used to close the cut in the sac. Unless there is infection it is not necessary to wash the sac until the wound in the upper part of the sac is healed, and then but a few times.

Before closing the sac it is well to feel with a small curette if there are any diseased conditions and if so act accordingly. He always flushes the eye with a forty per cent. argyrol solution before closing the sac.

This method can be used in combination with the West operation in this way: After the muco-periosteum has been removed, continue the operation through the external route with the bur as above described. In this way the hard part of the West operation, which is the removal of the bone and cutting into the sac, is avoided and would greatly simplify the West operation.

The logical reasoning following the simple method to establish the intranasal drainage of the lachrymal sac turns on whether it would not be possible to re-establish intranasal drainage after the lachrymal sac has been removed, if intranasal drainage proves itself.

It has always impressed the speaker that the condi-

tion nearest to normal is the best for the individual concerned.

He suggested the following technic: General anesthesia would be preferable to avoid swelling. An incision should be made just inside the lower lid from a point a little above the center of the internal canthus, to a little past the lower puncture, down to the bone of the lachrymal fossa. The knife is now passed down to the bottom of the fossa with the cutting edge toward the nose, the handle brought down and so cut the tissue in the fossa to the bone. The fossa is cleaned as much as possible with Freer's sharp elevators. The bur is now used to make an opening into the nasal cavity about the size of a No. 4 Theobald probe.

A strip of mucous membrane is now dissected from the lower fornix, from the temporal side to the internal canthus, but allowing it to be attached at that point. The wound is now sutured and a suture fastened to the end of the mucous membrane strip. The strip is now passed into the nose through the hole previously made, and the suture anchored to the outside of the nose. A metal cannula with an enlarged head about the size of a No. 12 Theobald probe, and 19 millimeters long, would be passed into the oculo-nasal opening to keep the hole open and the mucous membrane in position until it grew in place, when the opening would remain patulous.

Up to date Dr. Pratt has performed seven of these operations, which he reported in detail.

Dr. Pratt is now using a round bur of the same diameter, 3 millimeters, to make the initial hole. He also has another set of 2 millimeter sized burs to use when the sac is extra small. One is apt to make the hole in the bone too small and care should be used in reference to this. In cases where styles have been used it might be better to wear a short style through the new opening until the induration has subsided.

Dr. Frank Brawley thinks there might be a distinct objection to the intranasal operation on the ground of traumatism to the lachrymal sac, but perhaps Dr. Pratt's method of suturing might overcome that, and yet it added considerable difficulty to the operation. It undoubtedly has its advantages in cases where, from the anatomical difficulties, such as deviated septum, the eye was high up out of the operative field, but even in those cases he thought the bur which he mentioned at a previous meeting could be used very readily. Whenever one is dealing with a dacryocystitis the anterior ethmoid cells are under suspicion. Where the operation is intranasal and one has an opportunity to drain the anterior ethmoid cells, it will prove a serious complication unless they are drained at the time of operation or later as found necessary.

In the case he presented to a previous meeting of the society as having been operated on three and a half months ago, and again shown tonight, the drainage was going on uninteruptedly. The operation described by Dr. Pratt he thinks will be of advantage where the canaliculi have already been slit, but he feels that it is incorrect to disturb the lachrymal apparatus at all; that if a probe can be introduced into the lower canaliculus by strong dilatation and the pump action maintained, it should be done if possible.

Dr. J. Sheldon Clark of Freeport, spoke of the West operation and stated that he had described its technic at a previous meeting. What one wishes to get is not only drainage of the sac, but a functioning tear apparatus left. Any method that would do this and drain the sac into the nose was a good one. The operation suggested by Dr. Pratt could be done in the

presence of phlegmon, but one would hardly care to undertake the external operation in such a case. In all these cases a permanent result is desired, and time would tell which is the better method for maintaining a permanent fistula into the nose. Unless the septum is removed he thinks synechiae would follow the operation and defeat the aim of securing permanent drainage.

The West operation he had done in seven instances in association with Dr. Pratt.

Dr. Clark then exhibited some drawings showing the steps of the operation of West, and also some instruments that are used in doing the operation, and likewise detailed the cases on which he had done the West operation with satisfactory results. The intranasal drainage of the tear sac is the right way to establish surgical drainage of the lachrymal sac.

Dr. Pratt, in closing, said the operation from the sac to the nose is easily made, and can be enlarged to any desirable size. On the size of the bony opening depends whether it will close or not, the opening should have a vertical measurement of 8 mm. and a horizontal of 6 mm. The suturing of the opening in the sac places the lachrymal apparatus in its original position. The majority of the cases we see now have an opening in the sac, so the condition is not exaggerated, and we have the benefit of drainage.

The forming of synechiae is less apt to occur in this operation than the West, as the septum is protected, and so precludes this condition, while in the West the irritation of the instruments in the nose will abrade the mucous surface.

PAUL GUILFORD,
Secretary.

IROQUOIS-FORD COUNTIES.

The regular quarterly dinner and meeting of the Iroquois-Ford Medical Society was held at the Middlecoff Hotel, Paxton, Ill., March 2, 1915. The following members and visitors were present: Drs. S. M. Wylie, Martha Anderson, R. E. Hilmer, S. S. Fuller, G. F. Hewins, E. E. Hester, W. L. Cottingham, N. T. Stevens, F. C. Vandervort, L. H. Geiger, Frank Duncan, R. N. Lane, George A. Wash and I. D. Kelsheimer.

After a sumptuous dinner the meeting was called to order by the president, R. N. Lane.

On motion, Dr. J. R. Bemisderfer was elected to membership.

Dr. W. L. Cottingham's petition for membership was received and referred to the Board of Censors.

On motion, the annual dues were reduced to three dollars a year, commencing with Jan. 1, 1916.

On motion, the president was instructed to appoint a committee of three to arrange a joint meeting with one of the adjoining societies. Meeting to be held in Gibson City the first Tuesday in June, 1915.

Dr. T. N. Boue sent greetings and regrets that he was unable to attend on account of illness.

The following program was then taken up: "Normal Childbirth and How to Obtain It," R. E. Hilmer; discussion was opened by Dr. Wylie. "Blood Pressure in General Practice," N. T. Stevens; discussed by Drs. Vandervort, Hewins and Wylie; "Anesthetics," Dr. F. G. Vandervort, District Surgeon, I. C. R. R., Bloomington, Ill.; discussion opened by Dr. Wylie.

Meeting adjourned.

D. W. MILLER,
Secretary.

JACKSON COUNTY.

The first quarterly meeting of the Jackson County Medical Society was held in the Jackson Club rooms at Murphysboro, Ill., March 18, 1915. The minutes of the December meeting were read and approved. Dr. A. C. Ragsdale, of Carbondale, was elected to membership by transfer from Williamson county. The applications for membership of Drs. C. L. Miller and A. L. Thompson, of Makanda, were read and referred to the Board of Censors. An executive communication was read from the secretary of the American Medical Association warning physicians against giving testimonials indorsing the nostrum, Wine of Cardui.

The program consisted of a paper read by Dr. J. A. Warner, of St. Louis, entitled, "A Stereopticon Lecture on Immune Therapy," which was well received and gave rise to a lively discussion by the physicians present.

The luncheon formerly held in the evening was held at noon for the benefit of physicians outside the city.

The following members were present: Drs. Brandon, Whitacre, Thompson, Ragsdale and Lightfoot, of Carbondale; Drs. Riseling, Ormsby, Daniel, Hrabik, Roth, Essick, Sabine, Horstman, Ellis, Carter, Minner, Molz and Wayman, of Murphysboro; Drs. Chamness and Walker, of Elkhaville; Dr. J. R. Tweedy, of Vergennes; Dr. O. House, of De Soto, and Dr. John Bennett, of Ava.

The next meeting will be held at Carbondale, Thursday, June 17, 1915.

LOUIS R. WAYMAN,
Secretary.

JEFFERSON COUNTY.

The Jefferson County Medical Society held their regular monthly meeting Feb. 28, 1915, in the home of Dr. and Mrs. J. W. Hamilton, Mt. Vernon, Ill.

The following members and guests were present: Drs. G. O. Culli, A. M. Frost, W. H. Gilmore, C. M. Hall, J. W. Hamilton, A. D. Harper, A. T. Levick, Moss Maxey, C. J. Poole, R. R. Smith, O. A. Suttle, H. M. Swift, S. A. Thompson, Todd P. Ward, Walter Watson, Jas. W. Wells, J. T. Whitlock, Thos. B. Williamson, M. D. Henderson, W. R. Ross, Barney Garrison, Frank D. Case, W. M. McAtee, E. E. Edmundson and Andy Hall.

Dr. M. D. Henderson, of Opdyke, read a splendid paper entitled "Eugenics and the Physician." This was freely discussed by the physicians present.

Following the scientific program the members were served with a substantial buffet lunch, after which they listened to some good music, engaged in reminiscences and other forms of amusement. At a late hour they departed for their homes feeling that this was one of the best meetings in the history of the society.

Regular Meeting, March 25, 1915.

The Jefferson County Medical Society met March 25, 1915, in the reception rooms of Drs. Maxey and

Edmundson. The following were present: Todd P. Ward, Walter Watson, C. W. Hall, J. W. Wells, M. J. Freeman, J. T. Whitlock, S. A. Thompson, A. D. Harper, L. C. Morgan, C. J. Poole, Moss Maxey, E. E. Edmundson, G. O. Culli, J. W. Hamilton, J. K. Parker, A. T. Levick, H. M. Swift, T. A. Clark, W. H. Gilmore, J. A. Warner, Geo. Creneens, O. A. Suttle, R. R. Smith, Byford Webb, W. R. Ross, Andy Hall, B. B. Tatman, W. J. Bray, F. D. Case, W. N. McAtee, Grover Bond, Neil Bond, Walter Rackaway, C. E. McMahon.

In addition to the above mentioned the society was honored by the presence of Mrs. Pearl Williams, superintendent of the Training School, accompanied by the Misses Shroeder, Summers, Allen, Friedman, Wyatt, Darnaby, Maxey, Burke, Merker and Seigart.

Dr. J. A. Warner of St. Louis gave a very interesting and instructive lecture on the "Manufacture of Serums and the Immune Therapy." His lecture was illustrated by forty-five stereopticon views showing various phases in the manufacture of the serums.

The society adopted a resolution urging our members of the legislature to use their influence in securing the passage of the Dalton bill, "An act to prohibit any person, firm or corporation from obtaining money or property by the practice of fortune telling, clairvoyance, astrology, palmistry, spirit mediumship, card reading, seership or like crafty science."

In this enlightened day it looks like it would not be necessary for the enactment of such a law. It is almost beyond comprehension that any sane person having one eye and half sense would be duped by one of these impostors. Yet such is the case. In many localities these fellows have been put out of business by proper legislation. But not so in Illinois.

Only a few days ago we read the flaring advertisement of "Prof. Lantau, America's Greatest Clairvoyant and Yogi Mediator," who for fifteen days could be found at 315 South Tenth street, where he for 50 cents and \$1 would give you "substantial and accurate advice on all affairs of life, viz.: Love, courtship, marriage, business speculation, investments—anything—everything." His long suit appeared to be investments. For only a few days later our local papers took almost a full page telling how this wonderful Prof. Lantau had decamped to parts unknown, carrying with him more than \$800 belonging to two of our citizens who could ill afford to lose the money.

After the scientific and business part of the program the members were served a buffet lunch.

This was the largest attendance in the history of the society.

ANDY HALL,
Secretary.

MACOUPIN COUNTY.

Macoupin County Medical Society held its fourth quarterly meeting in the Commercial Club Rooms at Gillespie, Jan. 26, 1915.

President E. R. Motley, of Virden, called the society to order at 10 o'clock.

The following members and visitors were present: Dr. R. E. Bley, Jr., Bunker Hill; Dr. T. D. Doan, Scottville; Dr. J. N. English, Dr. C. D. King, Dr. T. C. Marion, Gillespie; Dr. D. A. Morgan, Nilwood; Dr. E. R. Motley, Virden; Dr. G. W. Westermeyer, Carlinville; Dr. J. L. Boehm, Dr. W. W. Graves, St. Louis.

An amendment to the recently revised Constitution was proposed making a quorum to do business to consist of five or more members. This amendment will be voted upon at the next regular meeting.

Dr. L. D. Hughes, of Virden, graduate of St. Louis University, 1909, after being reported favorably by the Censors, was unanimously elected to membership.

After an excellent luncheon the society met again and the regular program was continued. Dr. C. D. King, of Gillespie, gave an address on the subject, "Some Economic Problems Confronting Us." This was a discourse on the modern abuse of the contract practice and kindred subjects and was timely and well delivered.

Dr. W. W. Graves, of St. Louis, gave an address on "Demonstration of Some of the More Practical Methods Employed in Neurologic Diagnosis." With the living subject Dr. Graves illustrated how an examination is made to make an accurate diagnosis of a condition and his explanation was highly appreciated by the physicians present.

Dr. Joseph L. Boehm, of St. Louis, gave a short talk on some specimens of urinary calculi which he showed and then delivered an address.

A vote of thanks was extended to Dr. King, of Gillespie, Dr. Graves and Dr. Boehm, of St. Louis, for their excellent addresses.

While the number of physicians present was small, the interest was great and all went home from the meeting feeling strengthened for their work by having been there. The society adjourned to meet at Girard, April 27, 1915, at which time will be held the annual election of officers.

T. D. DOAN,
Secretary.

ROCK ISLAND COUNTY.

Twenty-two members and six visitors attended a regular meeting of Rock Island County Medical Society at Manufacturers' Hotel, Moline, on the evening of Tuesday, February 9, 1915.

By-Laws amendment providing for the honorary degree of Life Membership was adopted. Dr. C. Bernhardt, of Rock Island, and Dr. L. D. Dunn, of Moline, were elected to Life Membership by unanimous vote. Applications for membership were heard from Drs. D. C. Ross and Andrew Grassan.

Recommendation of Chairman Dr. R. R. Fergu-

son of Section on Public Health and Hygiene of Illinois Medical Society was responded to by the appointment of Dr. A. N. Mueller as representative of this society in section sessions to be held during the Springfield meeting.

Charges of support given to a "healing cult" of limited therapeutics, filed against one of our members, were discussed informally and action deferred until the by-laws provided six weeks' time shall have elapsed; the secretary being instructed to continue conference with the accused member in the effort to effect amicable adjustment.

The program was made up of two papers: "Lumbar Pain; Its Diagnostic Significance," by Dr. F. J. Conroy, of East Moline, and "The Perineum; Its Anatomy and Repair," by Dr. G. H. Hoffman, of Kewanee. Dr. Hoffman's talk was illustrated.

Adjournment was taken until April, at which time the annual election of officers will be followed by papers of Dr. L. W. Littig, of Davenport, and Dr. A. L. Brittin, president Illinois State Medical Society.

W. D. CHAPMAN,
Secretary.

ST. CLAIR COUNTY.

A special meeting of the St. Clair County Medical Society was held at the Elks' Club, East St. Louis, Feb. 18, 1915, at which the president of the State Medical Society and Dr. Fred S. O'Hara, of Springfield, were guests.

Owing to the unavoidable absence of the president and vice-president, Dr. H. C. Fairbrother was called upon to preside, a function which he performed with his usual dignity.

Dr. O'Hara was introduced and discussed "Advances in X-Ray Work," illustrating his address with numerous lantern slides showing details of diagnosis in cancer and ulcer of stomach and other portions of the digestive tract, disease of the kidneys, and various foreign bodies in cavities. This address was heard with the greatest interest by all present.

Dr. A. L. Brittin, of Athens, president of the state society, discussed the several phases of organized medicine; the need of support for the legislative committee by the profession of the state; the medical defense of the state society, and the methods of obtaining its benefits, and the duties of the members of limiting the cost; spoke encouragingly of the gains in membership during the past year; urged more frequent meetings of the county society; and then closed his remarks by a short, pointed and very practical paper on "Mouth Infections."

Discussion of the several papers and exhibits by Drs. Fairbrother, Robarts, Zimmermann, Wiggins and Raab concluded the scientific program.

On motion of Dr. Lillie, it was agreed to have another special meeting in March.

After adjourning, the members and guests re-

tired to the dining room where an excellent repast was served.

This meeting is regarded by those present as one of the best ever held by the society, and encourages us in a hope that we may have a successful meeting each month.

B. H. PORTUONDO,
Secretary.

VERMILION COUNTY.

The Vermilion County Medical Society met in the City Council Chamber, Danville, March 8, 1915, and was called to order at 8:15 by the president, Solomon Jones. The minutes of the February meeting were read and approved. The committee to wait on the state's attorney, headed by Dr. Coolley, was not present and there was no report. Dr. Dale, being ill, was unable to report on the St. Elizabeth's Hospital clinics for the April meeting. The president appointed Dr. Barton to take charge of the surgical part of the clinics and Dr. W. R. Tennyery the medical. Drs. Effie Current and H. B. and M. Y. Downs were unanimously elected to membership.

Motion by Dr. Dixon that the president appoint a committee to wait on the telephone company and ask them to list the osteopaths separately from the M. D.'s. Amendment that the president, secretary and Dr. Dixon be on that committee. Both carried.

Program of the evening: "Diabetes," by Drs. McCaughey and LeRoy Jones. Dr. McCaughey talked very interestingly in his characteristic thorough and scientific manner. He pointed out the necessity of a scientific knowledge of diabetes in order to properly treat the same. His talk was very instructive in the chemistry of sugars, and he had charts to show their composition and the way they were split and cared for by different organs of the body. Dr. Jones followed with a practical talk on diabetes.

There were 34 members present.

O. H. CRIST,
Secretary.

WINNEBAGO COUNTY.

The Winnebago County Society met at Nelson Hotel, Rockford, March 9, 1915. Members present, 28; visitors, 3; Dr. H. M. Starkey in the chair. Dr. Franklin A. Turner, upon approval of the censor committee, was voted in as a member of the society.

The following program was rendered:

Dr. A. J. Carlson, chairman of section on Physiology and Pathology in the American Medical Association, and at present with Rush Medical College, Chicago, addressed the society on the subject, "Some New Aspects on the Physiology of the Stomach." Dr. Carlson has performed numerous experiments on himself, on mammals and on a man with a permanent gastrostomy fistula, and

offered illustrations on the screen to show his phenomenal results. Following his talk there was general discussion. The society extended to Dr. Carlson a rising vote of thanks for coming to Rockford and explaining the results of his work on the stomach.

The president has seen fit to appoint the following committees: Milk commission—Drs. Penniman, Pearman and Kinley. Medico-legislative—Drs. Lichty and Fitch.

The report of the auditing committee on the treasurer's accounting for 1914 was accepted.

Meeting adjourned.

C. M. RANSEEN,
Secretary.

Personals

Dr. Wm. D. Napheys announces that he has opened an office at 25 E. Washington street, Chicago, and will give special attention to nervous and mental diseases.

Dr. H. H. Pillinger, Algonquin, has resumed practice following recovery from an infection of the hand.

Dr. Joseph B. DeLee was the speaker at a meeting of the Medical Woman's Club of Chicago, March 10, and Dr. and Mrs. Frederick Tice and Miss Grace Abbott were the guests of honor.

Dr. Edward L. Hill, Red Bud, has been appointed superintendent of the Jacksonville State Hospital, vice Dr. Henry B. Carriel, resigned.

Dr. Owen M. Knox has been appointed chief medical examiner of the North American Life Insurance Company, Chicago, vice Dr. James H. Stowell, resigned.

Dr. Glenford L. Bellis, formerly head of the Cook County Tuberculosis Hospital, has been appointed superintendent of the new Milwaukee County Tuberculosis Sanitarium.

Dr. Gilbert L. Bailey, Oak Park, sailed for Germany, March 2, to take charge of an American Red Cross Hospital.

Dr. William E. Buehler has resigned from the presidency of the Public Safety Commission of Chicago and Cook County.

Dr. Anthony Biankini was elected president of the Croatian League at its meeting March 11.

Dr. Cyrille Vermeren has been appointed Belgian Consul in Chicago.

Drs. Whedon W. Mercer, Peoria, and E. O. Jacoby of the medical staff of the Anna State Hospital, have resigned.

Dr. William A. Nason is reported to be ill at his home in Algonquin.

Dr. H. T. Baxter, formerly an interne at St. John's Hospital, Springfield, Ill., has begun the practice of medicine at Astoria in association with his father, Dr. Alfred J. Baxter, who has been in practice there for the past 33 years.

Dr. C. S. Nelson, Springfield, councilor of the fifth district, who was operated on for appendicitis at St. John's Hospital last month, is reported making a good recovery.

News Notes

—Work is under way on the administration and other buildings of the State Epileptic Colony at Dixon.

—Patients have been received at the Chicago Municipal Tuberculosis Sanitarium since March 9. Patients have been received up to April 1.

—The Watertown State Hospital has a tuberculosis cottage and men's infirmary nearly completed.

—A combination has been formed between the Post-Graduate Medical School and Hospital, the Chicago Polyclinic and Hospital and the Henrotin Memorial Hospital.

—The Accuracy Laboratories have published a bulletin entitled, "Blood Count—Anemia." It was found that the same contains very valuable data of interpretation of blood count laboratory reports and is mailed free to the profession upon application.

The financial standing of applicants for admission to the Cook County Hospital are investigated, except in emergency cases, and patients who can pay are sent to other institutions. The acceptance of patients well able to pay was formerly a political scandal.

—The medical commission composed of Drs. Joseph De Silva, Bernard J. Lachner and Louis Ostrom, Jr., named to have charge of the Rock Island Municipal Tuberculosis Sanatorium, has appointed an architect to prepare plans for the institution.

—Dr. John R. McDill, Milwaukee, formerly professor of medicine, in the University of the Philippines, will give a course of six lectures at Rush Medical College, Saturday afternoons from April 3 to May 8, on "Tropical Surgery and Borderline Diseases." The lectures will be free to the medical profession.

—The Chicago Society of Internal Medicine was recently organized with the following officers: President, Dr. James B. Herrick; Vice-President, Dr. Robert B. Preble; Secretary-Treasurer, Dr. Charles A. Elliott, and Executive Committee, the president, secretary and Drs. Charles Spencer Williamson, Ernest E. Irons and Walter W. Hamburger.

—The fifteenth meeting of the Robert Koch Society for the Study of Tuberculosis was held on March 25, at the City Club. Papers were read by Drs. C. S. Bacon and J. B. DeLee on the subject of "Pregnancy and Tuberculosis." There were 90 present at this meeting, which shows the importance of and the interest taken in this subject. We hope to publish these papers later.

—The Freeport Academy of Medicine has an auxiliary body composed of a number of organizations interested in social welfare. Under its auspices Dr. J. P. Simonds of Chicago, gave a popular lecture, March 16, on "Community and the Home—Their Reciprocal Sanitary Relations, and the Full-Time Health Officer." In May, Dr. Frank Allport, Chicago, will lecture on "Medical Inspection of the School Child."

—The doctors of Alton have again called to life the Alton Medical Society which in the past was a powerful factor for good in the local profession. We congratulate and hope that this society will embrace every doctor in Alton and become more useful than ever before. The officers are: President, F. C. Joesting; Vice-president, L. M. Bowman; Secretary, J. B. Hastings; Treasurer, E. A. Cook; Committee on "Welfare of Society," Mather Pfeifferberger, G. Taphorn and E. A. Cook.—*The Madison County Doctor.*

—That the doctors of the land shall look a little beneath the surface of Quaker Oats advertising as it has ordinarily appeared is the purpose of the manufacturers, who have recently increased their use of medical journals in order to tell the physicians the facts about Puffed Grains and Quaker Oats that the general public doesn't always appreciate.

The company's advertising is emphasizing the importance of its products as health foods. Quaker Oats are shown to possess, in addition to the ordinary nutritive value of oats, a special excellence due to care in picking out only big plump grains. The rolling process then partly prepares the oats for easy digestion.

The Puffed grains—Puffed Rice, Puffed Wheat and Corn Puffs—have three qualities which will recommend them to physicians in prescribing diets for delicate stomachs. They are made of whole grains with none of the vitamins removed, they are cooked and toasted through and through by the peculiar exploding process and rendered easily digestible at the same time, and finally they have a taste that will tempt even the most reluctant appetite.

Marriages

GROVER C. BULLINGTON, M. D., Nokomis, Ill., to Miss Margaret Christian of St. Louis, Mo., at Springfield, Ill., February 17.

LOUIS ROBERT MELNIKOFF, M. D., Chicago, to Miss Mae Arkin of Hammond, Ind., February 23.

IRVING FREILER STEIN, M. D., to Miss Lucile Oberfelder, both of Chicago, February 20.

Deaths

GEORGE W. BROWN, M. D., Eclectic Medical College of Pennsylvania. Philadelphia, 1868; prominent as an anti-slavery advocate and founder and editor of the *Herald of Freedom* and of the *Conneautville* (Pa.) *Courier*; died at his home in Rockford, Ill., February 5, aged 94.

W. IRVING BURNS, M. D. University of Vermont, Burlington, 1896; University of Buffalo, 1897; of Roanoke, Va.; formerly of Witt, Ill.; and a member of the Illinois State Medical Society; died suddenly from heart disease on a passenger train near Lithia, Va., March 1, aged 60.

FRANCIS E. CARPENTER, M. D. Jenner Medical College, Chicago, 1903; died at his home in Chicago, December 28, 1914, from nephritis, aged 61.

NICHOLAS B. DELAMATER, M. D. Hahnemann Medical College, Chicago, 1873; formerly of Chicago; for many years professor of mental and nervous diseases and later emeritus professor in his Alma Mater; who went to Sanford,

Fla., on account of his health in 1913; died in the Elgin State Hospital, March 11, from senile dementia, aged 67.

SAMUEL S. EIDLER, M. D. Rush Medical College, 1865; of Wichita, Kan.; for many years a practitioner of Streator and Ottawa, Ill.; died in San Antonio, Tex., January 24, from cerebral hemorrhage, aged 79.

CHARLES B. FRY, M. D. Albany (N. Y.) Medical College, 1861; one of the oldest practitioners of central Illinois; for many years district surgeon at Mattoon, Ill., for the Illinois Central Railroad, and division surgeon for the Big Four System; died at his home in Mattoon, March 3, aged 74.

FREDERICK ASHFORD GUTHRIE, M. D. Rush Medical College, 1896; a Fellow of the American Medical Association and American Academy of Ophthalmology and Oto-Laryngology; local surgeon for the Illinois Central Railroad at La Salle, Ill.; a specialist on diseases of the eye, ear, nose and throat; died in the Durand Hospital, Chicago, February 28, from meningitis following diphtheria, aged 42.

ALVIN C. HIESTER, M. D. Rush Medical College, 1880; a member of the Illinois State Medical Society; died at his home in Chicago, February 25, from pleuropneumonia, aged 60.

GEORGE B. MCCLELLAN HILL, M. D., College of Physicians and Surgeons, Chicago, 1898; specialist in diseases of the eye, ear, nose and throat; of Paris, Ill.; died at his home in that city, February 11, aged 51.

RALPH R. HOLSON, M. D. Kentucky School of Medicine, Louisville, 1891; died at his home in Iola, Ill., about February 17, from the effects of carbolic acid poisoning.

JOHN MATTHEW KARA, M. D. College of Physicians and Surgeons, Chicago, 1910; a Fellow of the American Medical Association; and a well-known Bohemian practitioner of Chicago, who went to Europe last fall as a member of the Bohemian-American Red Cross unit; died in Skopilje, Servia, February 27, from scarlet fever contracted during his work in war hospitals, aged 27.

MICHAEL WILLIAM KELLEHER, M. D. Bellevue Hospital Medical College, 1885; died at his

home in Chicago, January 30, from nephritis, aged 58.

ALPHONSUS VINCENT KING, M. D. College of Physicians and Surgeons, Chicago, 1909; died at his home in Chicago, February 26, from pneumonia, aged 31.

JOHN JASPER LAKE, M. D. Rush Medical College, 1857; a pioneer resident of DeWitt County, Ill.; for many years a practitioner, druggist and postmaster of Kenney, Ill.; died in the Odd Fellows' Old Folks Home, Mattoon, Ill., February 5, from senile debility, aged 85.

JEHU LITTLE, M. D. Long Island College Hospital, Brooklyn, 1865; Jefferson Medical College, 1877; a pioneer practitioner of McLean County, Ill.; hospital steward of the Thirty-third Illinois Volunteer Infantry during the Civil War; and for nearly half a century a practitioner of Bloomington; died at his home in Bloomington, March 11, aged 81.

HORACE E. MANN, M. D. Long Island College Hospital, Brooklyn, 1874; a member of the Wisconsin State Medical Society; a veteran of the Civil War; a member of the first city council and for several terms mayor of Marinette, Wis.; died at his home in Oak Park, Ill., March 3, aged 70.

ALVIN P. SAWYER, M. D. Hahnemann Medical College, 1880; died at his home in Chicago, February 3, from nephritis, aged 59.

ADAM B. SIMMONS, M. D. Eclectic Medical Institute, Cincinnati, 1867; a veteran of the Civil War and later a practitioner of Morrison, Ill., and California; died at his home in Chino, Cal., February 7, from influenza, aged 78.

MARIE JEAN STEES, M. D. Illinois Medical College, 1898; died at her home in Chicago, February 4, aged 53.

OSCAR FRED THORNTON, M. D. St. Louis College of Physicians and Surgeons, 1909; of Vaughan, Ark.; died at the home of his father in Lick Creek, Ill., January 29, aged 29.

HARRY BRISCOE VANATTA, M. D. Medical College of Indiana, Indianapolis, 1896; a Fellow of the American Medical Association and a member of the Aesculapian Society of the Wabash Valley; formerly of Lerna, Ill.; aged 34; died in Mattoon, Ill., February 1, from the ef-

fects of a gunshot wound believed to have been self-inflicted while despondent on account of carcinoma of the stomach.

WILLIAM G. WILSON, M. D. University of Maryland, Baltimore, 1852; for nearly half a century a practitioner of Shelbyville, Ill.; died at his home in that city, January 16, aged 87.

VICTOR WEINSTEIN, M. D. Bennett Medical College, Chicago, 1910; died at his home in Chicago, December 21, 1914, from angina pectoris, aged about 60.

NEW AND NONOFFICIAL REMEDIES.

Since publication of New and Nonofficial Remedies, 1914, and in addition to those previously reported, the following articles have been accepted by the Council on Pharmacy and Chemistry of the American Medical Association for inclusion with "New and Nonofficial Remedies."

Alcresta Ipecac Tablets: Tablets containing an adsorption product of ipecac alkaloids and Fullers' earth, each tablet representing 10 grs. of ipecac. The ipecac adsorption product is said to pass the stomach unchanged but to be decomposed in the intestine with liberation of the ipecac alkaloids and thus to exert the amebacidal action of ipecac in the body. Eli Lilly & Co., Indianapolis, Ind. (*Jour. A. M. A.*, Feb. 13, 1915, p. 591.)

Typhoid Combined Vaccine (Prophylactic): Marketed in vials and syringes, each package containing three doses. Schieffelin & Co., New York. (*Jour. A. M. A.*, Feb. 20, 1915, p. 665.)

Cantharidin, Merck: A non-proprietary preparation of cantharidin. Merck & Co., New York. (*Jour. A. M. A.*, Feb. 20, 1915, p. 665.)

TUBERCULOSIS

I am unseen but terrible.
I am a fiend, torturing my victims slowly to death.
I attack the weakest first.
I besiege the lungs and throat.
I am in the food you eat, in the water you drink,
in the dust you breathe.
I hate the sunlight.
Fresh air is my deadliest enemy.
Doctors are my ruin.
Pure water is poison to me.
If these are not used, I will glory,
I will regain my former strength,
I will conquer the earth,
I am TUBERCULOSIS.

—Kentucky Medical Journal.

The secret of successful fly swatting is cleanliness.

* * *

Clean up now and cheat the flies.

* * *

Also save sickness.

The good citizen will not be offended when he gets a notice from the Department of Health to tear out the old fly-breeding manure box and replace it with one built according to the provisions of the ordinance. In fact, if he is a real "Class A" citizen, he will himself get a copy of the ordinance and beat the Department to it.

Book Notices

A TEXTBOOK OF THE PRACTICE OF MEDICINE. For Students and Practitioners. By Hobart Amory Hare, B. Sc., M. D., Professor of Therapeutics, *Materia Medica* and *Diagnosis* in the Jefferson Medical College, Philadelphia; Physician to the Jefferson Medical College Hospital; one time Clinical Professor of Diseases of Children in the University of Pennsylvania. Third edition, revised and enlarged. Imperial octavo, 969 pages, with 142 engravings and 16 plates in colors and monochrome. Cloth, \$6.00, *net.* Lea & Febiger, Publishers, Philadelphia and New York, 1915.

This third edition of Hare's *Practice of Medicine*, just from the presses of Lea & Febiger, has been almost rewritten, and presents to the profession the latest findings of medical science. Perhaps the dominant characteristic of this book is that it has been made practical and of every-day service to the general practitioner. It is written in a style that enables the reader to get what he wants at once—concise, yet with that clearness that few books possess. Pathology, Symptomatology and Diagnosis each receives generous attention, but the author has paid especial attention to the treatment. While the latest information and theories are discussed, the author shows a wise conservatism. It is a valuable addition to the doctor's library.

CYSTOSCOPY AND URETHROSCOPY FOR GENERAL PRACTITIONERS. Bransford Lewis, B. S., M. D., F. A. C. S., Professor of Genito-Urinary Surgery, Medical Department of St. Louis University, St. Louis, Mo.; Genito-Urinary Surgeon to St. John's Hospital, etc., and Ernest G. Mark, A. B., M. D., F. A. C. S., Professor of Genito-Urinary and Venereal Diseases in the University Medical College, Kansas City, Mo., etc., with a chapter by William F. Braasch, M. D., Attending Physician to the Mayo Clinic, Rochester, Minn., with 113 illustrations, 23 of which are printed in colors. Philadelphia: P. Blakiston's Son & Co., 1012 Walnut street. Price, \$4.50.

The title of the book exactly indicates the scope of this text, but from the title one cannot get even an inkling of the value of the book. Developments in Cystoscopy and Urethroscopy have been so rapid and far-reaching that new texts are a necessity. This work brings the subject down to date.

Both text and illustrations portray the technique of Cystoscopy and Urethroscopy as it should be practiced today. The book is of great value to the student of urology who is learning the value of the Cystoscope, and to the specialist who wishes to prove the value of the methods of others. The illustrations are comparatively perfect and cannot fail to be of

great assistance in acquiring mastery of the subject.

The entire mechanical make-up of the book is good, and one must also mention the excellent skiagraphs.

DISSECTION METHODS AND GUIDES, by David Gregg Metheny, M. D., L. R. C. P., L. R. C. S. (Edin.), L. F. P. S. (Glas.). Associate in Anatomy, and for some time Senior Demonstrator in the Daniel Baugh Institute, the Department of Anatomy and Biology, Jefferson Medical College, Philadelphia. Illustrated. Philadelphia and London: W. B. Saunders Company, 1914.

This little book is written for the use of the student only and aims to teach him how to do a nice dissection. The student can use it to much advantage in the dissecting room. It is not intended to take the place of the text on anatomy. One following its directions will surely get much more out of a dissection than is usually the case.

CANCER—ITS CAUSE AND TREATMENT, by L. Duncan Buckley, A. M., M. D., Senior Physician the New York Skin and Cancer Hospital, etc. 1915. Published by Paul B. Huber, New York. Price \$1.50.

This little book will be warmly received by students of the cancer problem. A bibliography of more than seven pages adds greatly to its value.

The fact that cancer is increasing so fast the world over, that 90 per cent of those affected die, and that the United States alone had more than 50,000 deaths from cancer in 1913, creates a demand for literature upon the subject.

The author points to many of the fallacies of modern opinions of cancer. He is more optimistic concerning the treatment of cancer and the prolongation of life than are many of his conferees, and relies greatly on dietetics in the prevention and cure of the malady.

DIFFERENTIAL DIAGNOSIS. Presented through an analysis of 317 cases. By Richard C. Cabot, M. D., Assistant Professor of Clinical Medicine, Harvard Medical School. Octavo of 709 pages, 254 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$5.50; half morocco, \$7.00.

The second volume of *Differential Diagnosis*, which is just published, is very similar in character and method of presentation to the first volume, taking up, however, different main symptoms. The main presenting symptoms taken up in this volume are abdominal and other tumors, vertigo, diarrhea, dyspepsia, haematemesis, glands, blood in stools, swelling of face, hemoptysis, edema of the legs, frequent micturition, fainting, hoarseness, pallor, swelling of arm, delirium, palpitation and arrhythmia, tremor, and ascites and abdominal enlargement. The cases are presented in a most interesting style and each group of cases being preceded by extensive tables, showing in a graphic manner the frequency in which various main or predominating symptoms are present in various diseases. A valuable feature is the discussions held on each case and his methods of arriving at a diagnosis. It

is a book that will prove most interesting and profitable to every physician, and can be highly recommended for a place in every doctor's library.

CLINICAL DIAGNOSIS. *A Manual of Laboratory Methods.* By James Campbell Todd, M. D., Professor of Pathology, University of Colorado. Third edition, revised and enlarged. 12mo of 585 pages with 176 text illustrations and 13 colored plates. Philadelphia and London: W. B. Saunders Company, 1914. Cloth \$2.50 net.

The present edition of Todd's *Clinical Diagnosis* contains many new methods, such as the newly simplified Volhard method for chlorides in urine; the urease methods for urea in urine, blood, and spinal fluid; the Rimini-Burnam test for formaldehyd in urine, the Weisz permanganate (urochromogen) test, luetin reaction, and the use of edestin as a control for the glycyL-tryptophan test for gastric cancer, and many others likewise. A new chapter on Serodiagnostic Methods, including Abderhalden's test for pregnancy, complement fixation tests, and cobra-venom test for syphilis, has been added. It is a book intended primarily for the student and the practitioner, and as such fulfills its function, being thorough enough to enable one to perform the various methods perfectly.

NERVOUS AND MENTAL DISEASES. By Archibald Church, M. D., Professor of Nervous and Mental Diseases in Northwestern University Medical School, Chicago; and Frederick Peterson, M. D., formerly Professor of Psychiatry, Columbia University. Eighth edition, revised. Octavo volume of 940 pages, with 350 illustrations. Philadelphia and London: W. B. Saunders Company, 1914. Cloth, \$5.00 net; half morocco, \$6.50 net.

The appearance of the present edition, the eighth, by Church and Peterson, is enough assurance of its popularity. Not very much has been done in the way of material changes from the last edition. Vertigo and its labyrinthine relations, as developed by Barany, has received careful consideration. The section on syphilis of the nervous system has been carefully brought up to date, to include the recent epoch-making discoveries in this branch. Numerous references are made throughout to the new work on spinal fluid changes in nervous diseases. The authors can be congratulated upon their eighth edition, which is a thorough and up-to-the-minute work on nervous and mental diseases. The sections are edited separately—that on nervous diseases by Dr. Church and that on mental diseases by Dr. Peterson, both men authorities in their respective branches. The mechanical work likewise is perfect.

MEDICAL ELECTRICITY AND ROENTGEN RAYS AND RADIUM. By Sinclair Tousey, A. M., M. D., Consulting Surgeon to St. Bartholomew's Clinic, New York City. Second edition, thoroughly revised and enlarged. Octavo of 1219 pages, with 798 practical illustrations, 16 in colors. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$7.50 net; half morocco, \$9.00 net.

This is undoubtedly the most exhaustive and complete work of its kind in the English language. Every phase of electricity, insofar as it relates to medicine, is thoroughly gone into and no extreme claims are made for it, but common sense is shown throughout. Likewise the sections dealing with the X-Ray and Radium are as complete as that on Medical Electricity. It is a work complete enough for the specialist in these branches, but is especially valuable to the physician who desires to use these methods of treatment, which are becoming extensively used, but who is not thoroughly acquainted with them. As a complete, up-to-date work—in fact, a classic—it can be thoroughly relied upon.

PRINCIPLES OF HYGIENE: For Students, Physicians and Health Officers. By D. H. Bergey, M. D., First Assistant, Laboratory of Hygiene and Assistant Professor of Bacteriology, University of Pennsylvania. Fifth edition, thoroughly revised. Octavo of 531 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$3.00 net.

This new edition is issued primarily to bring it up to date, which has been ably done, considering the mass of new material and changes that have occurred since the last edition. It is not an exhaustive work, but one that will thoroughly post the physicians and health officers in matters relative to this subject, a subject which today has become of great importance to every physician. If one familiarizes himself with the contents of this volume he will have a very good knowledge of the principles of hygiene, and will be perfectly able to deal with conditions of health, preservation and the prevention of disease.

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercy Hospital, Chicago. Volume IV. Number 1. (February, 1915.) Octavo of 185 pages, 41 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Published Bi-monthly. Price, per year: Paper, \$8.00; Cloth, \$12.00.

The present volume of Murphy's *Clinics* is as interesting and instructive as the previous volumes. Dr. Murphy's talk on intestinal fistulae is classical. Among other subjects presented in this volume are Aneurysm of Brachial Artery, Sarcoma of Right Femur with disarticulation at hip, open reduction of spinal dislocation, ununited birth fracture of clavicle, and several other interesting topics. All are presented in his usual masterful way. It becomes a habit and a source of valuable recreation to read these unique clinics.

DEPARTMENT OF COMMERCE, Bureau of the Census, Wm. J. Harris, Director. Mortality Statistics, 1913. Fourteenth Annual Report. Washington: Government Printing Office, 1915.

QUARTERLY REPORT OF BUREAU OF HEALTH FOR THE PHILIPPINE ISLANDS. Second Quarter, 1914. To the Secretary of the Interior, Victor G. Heiser, M. D., Director of Health, Surgeon, United States Public Health Service. Manila: Bureau of Printing, 1914.

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Original Articles

VARICOSITIES OF THE PAMPINIFORM PLEXUS.*

CHAS. D. CENTER, M. D.,
QUINCY, ILL.

Literature on the subject of pelvic varices is extremely meagre; in fact, it is scarcely exaggeration to say that it is nil. Darnall of Atlantic City is about the only American who has given the subject serious consideration. European writers on record regarding it can be numbered on the fingers of one hand. Because it is a more important subject than would appear in the light of past investigations, and because it is a much more frequent condition than heretofore believed, and because the writer believes that women with varicosities of the pampiniform plexus are being operated upon daily for some supposed other condition, there seems justification for this article. More than this, the writer wishes to bring out emphatically the fact that this pathologic condition cannot, ordinarily, be diagnosed with the patient in the usual position for a pelvic examination, and that this pathologic pelvic condition has a distinct sociologic aspect.

In order that we may have a clear understanding of the anatomy now under consideration, let me refresh our memories by describing this venous supply. The pampiniform plexus in the male is that collection of veins known as the spermatic veins; in the female the same vein collection is known as the ovarian veins. Since this plexus is entirely analogous in the two sexes, modified merely by sex difference, I prefer the designation "Pampiniform Plexus." These veins are very numerous, both in the male and the female. In each sex they have no support from firm muscles surrounding them, but are found in

an easily distensible habitat. Distention and subsequent dilatation in the male produces the familiar condition of varicocele—a condition found so frequently that after making a series of more than 300 physical examinations of young men for military service, I am led to believe that at least 70 per cent. of all adult males have varicocele in some degree.

In the male these numerous veins ascend along the cord, in front of the vas, and enter the abdominal cavity through the inguinal canal. Here they coalesce to form two veins which ascend on the psoas muscle behind the peritoneum, blending as they go into one vein. On the right side of the body this one empties directly into the vena cava at an acute angle. On the left side of the body this coalesced vein empties first into the left renal vein at a right angle, making the chance of a venous block easier than on the right side. On the left side this coalesced vein passes behind the sigmoid. The greater distance from, and the more remote union with the vena cava, together with the right angle junction with the left renal vein, and the possibility of more or less sigmoidal pressure all the time, is why we expect to find left varicocele more often than right, and why we find trouble in the female pampiniform plexus more often on the left side.

Varicosity of the pampiniform plexus in the female is a condition not recognized sufficiently often. Why? Because a woman comes to us with this history: The time when she is on her feet she has a dull aching low in the pelvis, a dragging sensation which is constant, which sometimes runs down the leg to the iliac crest, or to the sacral region, and which gives her or is a part of a pernicious lumbo-sacral ache. She is worse about the time of the menstrual flow. She may have a severe dysmenorrhea; she may have menorrhagia. Two or three days after the monthly flow has stopped she may have a few days of comparative ease. She may be married

*Read before the Madison County Medical Society, March, 1915.

or single, a nullipara, or a multipara. She looks harassed, tired, nervous. She may or may not have had previous illness. She says she is nervous and irritable. She is sure she has some serious pelvic trouble. She is put on the table for examination. On inspection the cervix and the walls of the left vaginal vault seem rather more blue than you expected. There is probably a little leucorrhœa. Bimanually you find nothing, or at the most a suspicion of thickening, a soft, mushy thickening about the broad ligament. If the tubes and ovaries prove normal, if the uterus is not badly malposed, or is not the host for a neoplasm, if the cervix is not badly lacerated the chances are that you will decide that this patient is a neurasthenic, a neurotic, an hysteric, a woman suffering from chronic constipation, from intestinal indigestion, from auto-intoxication—broad terms we all use at one time or another to cover our inability or ignorance. If you tell this woman she has no pelvic trouble she will go, sooner or later, to another doctor, for she knows she has. There is but one way for you to escape error in these cases, *examine her in the erect position*. This position has much to recommend it for all routine pelvic examinations. First, the pelvic organs are found in the position and condition they hold when the woman is on her feet, the time she suffers the most discomfort. Next, you do not have to contend with a rigid patient, for the woman undergoing examination on her feet knows that her position is not an ungraceful one, knows that her person is not exposed, knows that you are not taking notice of her clothing. When she is on her back, with the legs flexed, the heels in the stirrups, and you tell her to allow the knees to separate she has to contract the adductor muscles to hold her legs in the position desired. The flexion of these muscles must call for some contraction of all auxiliary muscles, and you find a patient with a rigid abdomen. When the patient with varicose pampiniform plexus stands up, you will be surprised to find, in many cases, that what seemed to you before to be merely a little thickening in and about the broad ligament, has now become a clearly demonstrable doughy mass, a mass you cannot mistake, cannot overlook.

Take another aspect of this case. When you examined in the dorsal position you found this

suspicion of thickening; the ovary seemed a little hypersensitive, perhaps a little enlarged, or a little diminished in size with a sclerosed feel, and you tell the patient there is sufficient ovarian defect to justify an exploratory operation with probable removal of that ovary. That woman is looking for relief, and being self-persuaded that she has serious trouble there consents to the operation. At that time you do find an ovary slightly enlarged, with two or three pea-sized cysts in it, or you find it shrunken and fibrous. You remove that ovary. You see nothing else abnormal, for the patient is on her back and the veins of the pampiniform are not distended. The patient makes a splendid recovery. During her convalescence she has none of the old dragging ache, for she is lying down, but when she has been on her feet for a few weeks, and has resumed her household duties, you are chagrined to find that she is having the same old chain of symptoms, and you will be fortunate if the patient does not decide to try another doctor. Your only hope of having made good with that patient is that you have destroyed, unconsciously, the pampiniform plexus at the time of the removal of the ovary.

The etiology of varicosities of the pampiniform plexus is broad. Two reasons have been cited from an anatomic standpoint. The sigmoidal reason should be kept in mind especially, for this pouch has greater capacity in the female than in the male, and as a rule the female of our day, because of dress, environment, social life, diet and custom is more apt to have the sigmoid full habitually than is the male. Another etiologic factor is pregnancy which normally enlarges and temporarily dilates this plexus. Another is menstruation, which because of its effect on the pelvic blood supply has been called a monthly miniature pregnancy. Another is malposition of an organ, or organs in the pelvis of a nature to interfere with the return flow of blood in these veins. Another is uterine or tubal infection, with extension to the vein walls, in other words, a phlebitis. Still another is inflammatory exudate causing pressure. There is yet one more cause at least, and so far as I know this one has never been brought out. After it is mentioned you may decide that it is effect rather than cause. This factor is the sexual orgasm too frequently, or too oft repeated. It is a well

recognized fact that varicocele in the male increases sexual appetite, and sooner or later decreases sexual ability. There is no question that varicocele in the female increases the appetite, and you can readily see, cannot decrease the ability. At the present time, however, because of the insufficiency of the data, trying to prove which is effect and which is cause in these cases, is about as fruitless as trying to settle the old question, "which came first, the owl or the egg." Irrespective of which is cause and which effect, you can readily see that there is the establishment of a vicious circle—the greater the sexual appetite the greater the varicosity, and the greater the varicosity the greater the sexual appetite. From this you will perceive that this pathologic condition opens a very interesting sociologic question.

I do not know how many cases of pelvic varices I have overlooked, but in the light of experience of recent years I am confident there have been a good many. I do not know how many were operated on for some supposed other condition, where the patient was not improved, or was partially improved, or where by an unconscious and unintentional destruction of the pampiniform plexus she was entirely cured. I do not know how many of these patients have gone elsewhere for operation, but it has been my good fortune to recognize and diagnose a few of these cases that had been operated upon previously, where the condition had not been corrected, and where cure was effected when the pampiniform plexus was destroyed at the second operation. It has been a source of great satisfaction, too, to be able to make a positive diagnosis in some instances, by making the examination in the erect position, when the ordinary position revealed nothing.

Let me cite a few instances, as briefly as possible, to give you a bird's eye view at least, of the diagnostic and sociologic picture:

Case 1. Unmarried; aged 27 years. Never had any sickness of any sort. Referred to me by an able colleague who could find no pelvic trouble. Examination in the dorsal position revealed nothing except hypersensitive ovaries. She was told she was not a surgical case. This decision caused a burst of tears from the patient, and the exclamation that she had to be operated upon; that if she could not be given relief she would kill herself. Further questioning elicited the statement that she could stand the backache, and the sagging feeling in the lower abdomen, but that she

had developed such a furious sexual appetite that she could not trust herself; that she had betrayed herself to her employer, and that rather than face what she was facing daily and hourly she would seek relief in death. For three reasons I finally promised to operate on her. 1st. She bore an unquestioned reputation. 2nd. She came of an excellent family. 3rd. I was curious to see if there was anything in that pelvis to account for that condition. It is likely that at the operation, had I found any particular ovarian, or tubal, or uterine pathology that such pathology would have been considered the cause of her trouble, but there was practically nothing. The only noticeable thing was the gross color of the broad ligaments. Examination of these disclosed that the blue color came from very large veins; more from curiosity than anything else, these veins were compressed against their flow and almost at once there were veritable tumor masses in that pelvis. It struck me that this was the cause of her sexual frenzy, and the veins were tied and destroyed, a varicocele operation, and the passing years have shown that the patient was cured.

Case 2. Aged 44 years; married at 21. Menstrual history clear. Mother of nine children; has had two miscarriages. Symptoms, pain in pelvis and back, described as a dragging, sagging feeling sometimes sufficient to produce nausea and vomiting. No previous sickness, except history of run of fever following one of the miscarriages. Denies constipation. Referred to me for operation for retroversion which was present. Patient also said that from time to time she had a swelling low down on left side, which seemed to push down and into the vagina, and that when she had this swelling that pressure on the left inguinal region was very painful. Further questioning elicited the fact that she had never seen a swelling, but that her feeling was that there was a swelling. Examination in the recumbent position disclosed the retroversion, freely movable. It also disclosed a considerable thickening about the left broad ligament, which while soft and mushy to the feel, I decided was the result of an infection since the time of the miscarriage with temperature. Laparotomy was done with the intention of supporting the uterus by one or another method, and of clearing out that left side, which I supposed was either a flaccid pyo- or hydro-condition. Operation disclosed none of the expected conditions except the retroversion, but an enormous varicosity was found. This was destroyed, the uterus hammocked by the round ligaments, and the patient was, and has remained, cured.

Case 3. Prostitute; aged about 28 years. History taken for what it seemed worth, except for the symptoms related as existing, which were the aching, and dragging in the pelvis, the extreme pain at the menstrual period, when she was disabled for about ten days each month. Patient very loath to have operation, as she feared it would impair her usefulness, and her manager said she was in greater demand than any girl in the house. Pelvic findings, soft masses about

the uterus on either side. A positive diagnosis of varicosities was made here, and proven correct at operation. Like most of the girls of this class, she moved on to a fresh field in a little less than a year, and I cannot use her either for clinical proof or sociologic argument other than to say that so long as she remained in Quincy she had no further pain and discomfort.

Case 4. Aged 32 years. Multipara, no miscarriages. Always had dysmenorrhea. No infective diseases since childhood. Increasing pain and discomfort in the pelvis and sacral region. *Some pain extending in the direction of the left kidney.* Has had an ovary removed by one doctor; no improvement. Has had the appendix removed by another; no improvement. A third told her, after examination, that she was a neurasthenic. A dilating and curetting was also done by number two, no improvement. Examination in the dorsal position disclosed nothing at all. Examination in the erect position, with arms stretched up over the head, gave an unmistakable mushy mass on each side of the uterus.

Case 5. Aged 29 years. Married nine years, one child, no miscarriages. Dysmenorrhea from puberty. Never a strong, vigorous woman. During childhood and adolescence had many attacks of tonsilitis. The usual train of symptoms in the pelvis, except that it appears from the history that the right side was first involved. Operated for what was thought to be a case of chronic appendicitis. No improvement. More than this, she began to have the same pain on the other side. Her doctor then told her he would have to dilate and curette, but she declined and changed doctors. Examination in the recumbent position gave nothing on the right side, but certain thickening on the left, and the erect position increased it on the left and produced it on the right. Operation disclosed the expected varices. These were ligated and divided, since when she has lost the feeling of pain and dragging in the abdomen, lost the backache, and the dysmenorrhea is almost a negative quantity.

Case 6. Aged 25 years. A "kept" woman. She came to me for medicine, something to enable her to get satisfaction and relaxation after intercourse. She would have the orgasm, but no sooner was it over than she felt unsatisfied. Questioning elicited the fact that in this respect she was as rapacious as Messalina. A pelvic examination revealed the expected mushy masses on either side of the uterus, masses which practically disappeared when the woman was lying down. I offered her operation as a cure, but she deduced from my remarks that the operation might curtail her tendencies, and so declined.

Case 7. Aged 29 years. School teacher. Practically a similar case to case 6, except that this woman applied for medicine to check and control her increasing sexual appetite. She was beginning to be afraid of herself. Examination revealed the suspected condition, but operation was declined. Not long after this she got herself talked about, lost her position as teacher, and has drifted from sight.

Cases 6 and 7 are of interest because they suffered comparatively little pain, aching, or menstrual inconvenience. They are of interest too, because of their sociologic bearing.

It must be remembered that not all cases of varicocele in the male are painful. Any one of us can recall a large varicocele which apparently was big enough to cause considerable pain, and which did not; and on the other hand each one has seen a little insignificant one that caused so much pain it required ligation to relieve it.

In conclusion. 1. Unless trouble in the female pelvis is so patent that there can be no chance for error in diagnosis, always examine in the erect position.

2. Suspect varicose pampiniform plexus in every case that gives the persistent lumbo-sacral ache, the feeling of dragging low in the pelvis, and the history of increased, or abnormal sexual appetite.

3. Ligate more varicose veins in the pampiniform and there will be fewer ovaries removed, fewer dilatings and curettings done for dysmenorrhea, and more women made comfortable.

4. In order that statistics may be collected for sociologic study follow up each case operated upon for varicose pampiniform plexus among the members of the half world.

ACIDOSIS.

J. W. VANDERSLICE, M. D.,
OAK PARK, ILL.

The term acidosis is used to describe a condition which is met with quite frequently in the diseases of children. In the consideration of acidosis it must be understood that one is not dealing with a separate disorder nor with a complication arising with more or less frequency in a group of pathological conditions but rather as a manifestation occurring with greater or lesser severity in the course of the disorder under observation.

Acidosis is a symptom complex in which acids arise in the metabolism giving rise to di-acetic acid, acetone, increased acidity and an excess of the ammonium nitrogen content of the urine; a distinct acetone odor to the breath, with the train of symptoms caused by the general impoverishment of fixed bases.

The conditions giving rise to acidosis may be classified into two groups—the exogenous and the endogenous. The commoner conditions in which the exogenous type appear are alimentary glycosuria, fat indigestion, carbohydrate fermentations, overfeeding and cyclic vomiting. In the endogenous group are starvation, diabetes, rheumatism, scarlet fever, measles, pneumonia, acid intoxication, vomiting of pregnancy, and delayed chloroform poisoning.

In the exogenous group are found only disturbances of digestion but each of these conditions gives rise to an acidosis in a manner peculiar to itself.

Alimentary glycosuria is a condition embracing both an acidosis and a glycosuria. This condition manifests itself in conditions of intoxication. In infancy this condition is seen more frequently in the acute gastro-intestinal disorders as gastro-enteritis, summer diarrheas, colitis, etc. Here are found several elements of etiological significance. The diarrhea removes much of the alkali in the stools, thus removing fixed bases or substances that may readily give rise to fixed bases without an opportunity for combining with the end products of metabolism in the circulation. The high temperatures of the patients increase the production of end acids.

Fat indigestion is a frequent source of acidosis, this not by reason of an intoxication so much as a salt starvation; in a fat indigestion or better stated an incapacity of the individual to assimilate the fat content of the food ingested, the result of the ingestion of more fat than the economy can take care of results in the production of soaps and fatty acids which are excreted in the bowel movements. In the infant fed on milk, either human or bovine, there is but a limited supply of salts contained; if this salt content of the food be used for the elaboration of soaps there arises within the economy a scarcity of bases. The continuance of such perversion of the salts will produce an impoverishment of fixed bases with resultant acidosis.

Carbohydrate fermentations form a very large group of the cases in which acidosis is met. Theoretically this would be expected as it is well known that when the carbohydrates are taken from the normal individual acidosis arises and

in diabetes the incapacity for carbohydrates is a signal cause.

The familiar clinical picture in infants of the very acid stool and erythema of the buttocks in this group of cases points directly to an over production of acids and clinically it is readily shown that an increase in the carbohydrate content of the diet increases both the acidity of the stools and the urine.

Overfeeding may give rise to an acidosis in various ways, as an overtaking of the digestive capacity, absorption of products of acid fermentation from the bowel, or the overloading of the blood with the end products of digestion at the expense of the actual breakdown of proteid in the body cells.

In cyclic vomiting there is seen an acidosis which is recurrent in type. In these cases the attacks of acidosis recur with more or less regularity. Many of these cases are described as biliousness and the intervals between the attacks are quite regular, the average being about two months. There is a prodromal stage of one to three days when the patient is languid and peevish, with loss of appetite, little or no rise of temperature, constipation and slight disturbance of the respiration. The prodromal stage may pass unnoticed and violent persistent vomiting apparently occurs in the midst of perfect health. The vomiting is propulsive and without nausea. The vomiting is persistent, regardless of the stomach contents; the giving of a dram or two of water bringing on a violent vomiting attack. An examination of the urine at this time discloses di-acetic acid and acetone and the breath has the characteristic acetone odor. The pulse early is slow but the exhaustion caused by the excessive vomiting soon causes a rapid, irregular pulse in the severer cases. If unchecked by appropriate medication these cases persist twenty-four to seventy-two hours.

As the disorder progresses sopor appears and is gradually replaced by stupor. The loss of water caused by the excessive vomiting gives the face a hollow, pinched expression. The respiration is early deranged, one common type being shallow and rapid without interval; frequently the respiration takes on either a sighing character or the Cheyne-Stokes type. There is constipation. As the condition clears, vomiting ceases,

sopor disappears, leaving the patient better than previous to the attack.

Of the endogenous group, the terminal acidosis of diabetes is typical, though the group of cases known as acid-intoxication better represents this type of cases as seen in early life.

Acid-intoxication is a relatively infrequent disorder and manifests itself usually during the second year of life. The onset is sudden and acute. The initial symptoms are persistent, propulsive vomiting without nausea and sopor. The temperature is relatively low, 100-102° F., the pulse slow, constipation, respiration disturbed, a marked acetone odor to the breath. The patient shows every evidence of air hunger. The pulse-respiration ratio has narrowed to 1:1.5 by increase of the number of respirations rather than slowing of the pulse. The respiration is distinctly without interval and any interference with respiration develops signs of acute air-hunger but without cyanosis. These patients do not become cyanotic and may be desperately ill yet the facies be but little changed. The initial sopor is early replaced by stupor and stupor soon is gradually succeeded by coma, partial or complete. The duration of these cases is from twenty-four to seventy-two hours. The prognosis is on the plane with tubercular meningitis.

In the acute infectious diseases, rheumatism, scarlet fever, pneumonia, measles, acidosis is a prominent manifestation. There is but slight relation between the severity of the disorder and the severity of the acidosis. The individual case that shows acidosis under many conditions will suffer more severely from acidosis during a mild infection than the severe case that has no such tendency. This peculiarity has been so frequently noted in the same families that frequently the question has occurred to the author, "Are these cases potentially diabetics?"

The acidosis has but slight effect upon the prognosis of the disorder *per se* but the length of the attack seemingly is prolonged and the number of complications increased. Some authorities insisting that if the acidosis is early neutralized there are no complications. Though there may be some hesitancy in accepting such a postulate there is much evidence to the effect that an early efficient alkaline treatment does materially lessen the number of complications.

The underlying factor of acidosis is the gen-

eral impoverishment of the body of bases to neutralize the acid products of metabolism. This condition is brought about, first, by starvation or by foods low in bases or may ensue from perversion of the bases in the alimentary canal; second, by disturbance in acid formation and elimination; third, by loss of alkalis as in excessive diarrheas. The urine contains an increased amount of ammonium salts; the ammonium nitrogen content at times reaching as high as 70 per cent of the total nitrogen content. There is increased acidity of the urine.

The symptoms are persistent vomiting, usually of a propulsive character, continuing long after all food has been removed from the stomach, recurring when but a dram or two of water is given. The characteristic odor of acetone is always present and persists after all other symptoms have disappeared. Even in the milder cases in which there is little or no vomiting the odor of acetone is distinct and frequently is the one symptom which attracts the attention to the acidosis. The respiration is early involved, first by an increase in the number of respirations, which are characterized by a loss of the interval between expiration and inspiration; soon, however, there is a change in the rhythm and a sighing or Cheyne-Stokes type appears. There is constipation which resists ordinary cathartics and laxatives. The mentality is dulled, the milder cases having mere sopor, while in the severer cases the sopor is early replaced with stupor or with a coma—partial or complete.

The diagnosis is made from the characteristic odor of the breath and the urinary findings. The tests for the urine may be found in any textbook on diagnosis. A clinical test is made by the increased tolerance for carbonates, an arbitrary rule being: an adult is given seventy-five grains of bicarbonate of soda by mouth; this should appear in the urine in three hours; the dose is repeated every six or eight hours.

The medicinal treatment is apparent, the pushing of alkalies in massive doses at frequent intervals. The common treatment is the giving of five to twenty grains of soda bicarbonate every hour. In individual cases the administration of magnesia to replace the soda appears advantageous. The author uses the citrate of soda to a large extent as there is less objection to the taste and the citrate is more freely soluble; is

better given as an addition to the milk as it does not change the reaction nor interfere with gastric digestion. The ordinary prescription for a child during the second year is:

Sodii bi-carb., grs. V.

Sodii citratis, grs. V.

M. et Sig. Repeat every hour.

This treatment is continued until the acetone odor of the breath disappears.

Among writers upon this subject there is an apparent disparity in the dietetic treatment. This, however, is more apparent than real as a close analysis will show that the various authors each had in mind but one or two types of the condition when advising special dietary restrictions.

The dietetic treatment must be based upon the etiological factors. A very clear distinction must be made between the exogenous and the endogenous types and where there is a combination of the two causes then both must be given consideration.

In an alimentary glycosuria with the rapid loss of alkalis through the bowel movements and an increase of tissue waste by reason of high temperature the acidosis can only be neutralized by resorting to hypodermoclysis so long as the very frequent bowel movements persist. This should only be resorted to in very severe cases as there is usually a large slough appears at the point of the injection. An injection of normal salt solution may be of some value in furnishing bases but this is more or less problematical.

The drug most frequently used in the hypodermoclysis is the sodium carbonate in one per cent solution and is practically always followed by the sloughing of the tissues in the area of the injection. The better treatment in this group of cases is attention to the digestive disturbance with large doses of alkalis by mouth such as chalk mixture, lime water, etc.

In a fat indigestion all fat should be eliminated from the diet and should not be again added to the diet for some days after the disappearance of all symptoms. The fat should be added very slowly and gradually and any tendency toward a light colored stool should be interpreted as a danger signal and the fat content lowered. In many children it is well to change the fat as it is found that while butterfat as butter is easily digested, butterfat as cream cannot be taken

care of. Where there is an aversion to one fat the substitution of another may be advantageous. Many children will take swine fat either as bacon or salt pork, olive oil, peanut butter or a cotton seed oil product.

In carbohydrate fermentations there is either too large a carbohydrate content or the particular carbohydrate is not borne. In bottle-fed babies the change from the particular sugar should be made by a cutting down of the percentage and some other form exhibited, thus if the lactose seems an irritant, maltose or dextrose should each be tried in turn.

In overfeeding the dietetic treatment is self-evident; however, a mere cutting down of all of the food elements may not meet with the signal success anticipated. It is well in these cases to cut down all food to the extreme minimum and then increase each food component separately, never increasing more than one element in one day.

In cyclic vomiting there is a gradual impoverishment of the bases or, perhaps, better stated, there is a lack of supply of bases which the natural elasticity of nature is capable of overcoming to a certain degree but there comes a time when the reserve force is entirely destroyed and there is ushered in very suddenly a severe acidosis. A careful case history is of extreme importance and very frequently the dietetic error which is the underlying cause may in this way be disclosed. It is usual to find that there are certain carbohydrates at fault. Experience has taught that the best diet for these cases is to put them on a very high proteid content such as skimmed milk, chops, steak and eggs. As the appetite returns an addition of a single carbohydrate, such as zwiebak, is made; if this is well borne, toast and stale bread are then added. This is used as the primary diet and various additions are made and if fermentations occur the patient is again put on this primary diet. It has been found that there is a distinct advantage, in making additions to the primary diet, to first add the green vegetables, then the dry vegetables and last the sweets.

In the endogenous group the apparent causative factor lies more in the cutting down of the alkaline intake rather than a specific action of the infectious agent or increased waste. Formerly the giving of large doses of alkalis for febrile

conditions was the rule rather than the exception, but the common use of coal tar products, salicylic acid and its derivatives, with the advent of serums, has changed this so that if the attention is not specifically called to this need there is an entire lack of supply from this source.

In the literature of late there has been a decided emphasis placed upon the giving of sodium salicylate with twice the quantity of sodium bicarbonate; to this it may be said that the recognition of the necessity for such a prescription shows an awakening to the necessity of the exhibition of alkalis in all conditions in which there is a lack of supply, a perversion of the salts or an increase in tissue waste.

DIGESTIVE DISTURBANCES OF INFANCY OF PROTEID ORIGIN.*

R. R. FERGUSON, M. D.,
CHICAGO, ILL.

In Holt's "Diseases of Children," we find the following statements by Munk.¹

Proteids are absolutely essential to life and constitute the only kind of food which must replace the continuous nitrogenous waste of the cells of the body. Proteids may sustain life and prevent loss of weight for a time without the help of either the fats or the carbohydrates, but in so doing a great excess in food is necessary, as it takes twenty-two parts of proteids to do the work of only ten parts of fat. The digestive organs and the kidneys must soon show the effects of such a diet. On the other hand, when fat and carbohydrates are added to the diet, proteids may be decreased to one-half or one-third as much as before and still replace all the nitrogenous waste.

Taking it for granted that the above statements are facts, let us first see what proteids we have to deal with in childhood and then take up the disturbances caused by these different proteids. In the dietary of the child proteids are usually furnished by the casein and other albuminoids found either in mother's milk or cow's milk, or in the cereal foods; or in any of their combinations.

The proteids of woman's milk are by far the most easily digested; and the greatest difficulty

of infant feeding is to supply other proteids which can take the place of these particular ones found in woman's milk. It may be the difference in the digestibility of the proteids that causes much of the trouble in substitution of cow's milk for woman's milk.

The proteid disturbances of digestion therefore, may be divided, for convenience, into three classes: First those caused by the difference in the digestibility of the proteids of different foods; second, too low percentage; and third, too high percentage of proteids.

In woman's milk the whey proteins predominate over the casein in the proportion of 2 to 1, but in cow's milk the proportion is 1 to 6. Chemistry has not as yet made any practical or important differentiation between the whey proteins of woman's and cow's milk, but we have in the quantities of casein and soluble albumins they contain two entirely different milks. The most important difference lies in the chemistry of the two classes. This difference is recognized by the manner in which they react to the same ferments and reagents.

In the stomach of the human infant the calcium casein of cow's milk (the form in which the casein exists in cow's milk), is readily precipitated by cow's rennet,² in the presence of a slight amount of acid, into a clot of calcium paracasein, which is larger and tougher than the clots which occur in the infant stomach from the action of the same reagents on human milk.

Casein itself is rarely the cause of intestinal disturbance. On the other hand Finklestein and Meyer have demonstrated that intestinal indigestion may be improved or controlled by increasing the quantity of the casein and diminishing the quantity of sugar and fat in milk.

The digestibility of the casein of cow's milk depends largely upon the presence or absence of the conditions in the infantile stomach which cause its precipitation in large or small clots.

It is very easily digested and assimilated if large clot formations can be prevented. Alkali in milk delays this curdling, as also does boiling (not pasteurizing).

Alimentary fever may occur under certain conditions in infants to be mentioned later, after the administration of the casein of cow's milk and perhaps the other proteins.

Casein indigestion is indicated by large tough

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curds, and putrid, loose, brownish alkaline stools, fever and other constitutional symptoms; loss in weight, flabbiness, anemia, with either constipation or diarrhea.

Cow's milk casein, although probably the most fruitful factor in causing constipation in bottle fed babies, nevertheless is necessary for a child's nutrition. Any considerable reduction, such as may be obtained by giving a mixture of cream, sugar and water may relieve the constipation, but the child thus fed will suffer from a nutritional standpoint and instead of being constipated will become rachitic, which is much worse than mere constipation.

Most of us make the mistake of giving percentages of proteids at the beginning so high as to cause both disturbances of the digestion and nutrition. Those who appreciate how great is the danger of high proteids must guard against the habit of keeping them low so long that nutrition of the child suffers. Success comes in a discrimination between the two extremes.

There is no rule for feeding proteids since infants differ so greatly in their ability to digest them, but it is a safe rule to begin low and increase very gradually by percentages not over .25.

The disturbances of digestion which have been traced to the proteids in one form or another are many and constitute a life study in themselves. Briefly the literature shows the following:

Most German writers consider proteids almost harmless; very seldom causing indigestion.³ However, Morse⁴ of this country and Combe of France think they often cause true dyspepsia. Holt and Levene have demonstrated that large amounts of casein per mouth may cause a rapid rise in temperature. During their experiments in which a "synthetic food" very rich in casein was fed, they observed five times a rise in temperature which continued until the food was changed, it then becoming normal.

This fever only occurred when six per cent. casein had been administered with very small amounts of milk.

A fertile field for speculation has always been the association of anaphylaxis with some of the disturbances caused by cow's milk. The following case is reported by Neuhaus and Schaub and is suggestive:

A healthy child had previously been breast fed, but had probably received a large amount of

cow's milk. The symptoms were suggestive of anaphylactic shock and there were large numbers of eosinophiles in the stools. After recovery a like attack was induced by feeding casein from cow's milk, while casein from breast milk and the whey from cow's milk had no effect.

Meigs⁵ thinks that hypersensitiveness of cow's milk could not exist without a passage of protein unchanged through the intestinal wall. This has been proved not to occur in the normal infant after the first weeks.

That an increased permeability of the gastrointestinal epithelium for foreign proteid occurs in children with nutritional disturbances has been proven by Lust and Hahn.

Lust fed different forms of foreign proteid to children with such disturbances and then employed the following tests to determine whether or not the protein had passed through the intestinal wall unchanged. The urine and in some cases the blood serum were tested with a serum having a strong precipitation titre for the protein which had been fed.

Also guinea pigs were injected with the urine and after three weeks tested with the homologous protein for sensitization. He also studied the permeability in animals in which a gastroenteritis had been produced by a strong sugar solution. In his experiments on infants he found that egg albumin passed through the wall nine times out of sixteen cases of acute and chronic nutritional disturbances, while ox serum passed once in seventeen cases, the passage being most frequent in acute intestinal disturbances, especially intoxication.

The normal protective forces of the organism against the absorption of unchanged protein consist in two things: Digestion of the proteid by gastric and pancreatic juices; and the normal resistance of the epithelial cells of the intestine to the passage of the protein.

In nutritional disturbances, as the digestive juices are present the fault must lie in the decreased resistance of these cells.

Vaughan's interesting paper⁶ last year suggests a possible cause for infantile diarrheas. He mentions the fact that peptone and other decomposition products of proteid cause symptoms of disease and that sensitization may result from the absorption of undigested or partially digested proteins from the alimentary tract. Whether

or not the summer diarrheas of infancy ever originate in this way, is a question to which a positive answer cannot be given. There are some good reasons for suspecting that the lowered vitality of the infant due to excessive heat may lead to the absorption of undigested proteins and in this way cholera infantum and kindred diseases may be induced.

In other words, Vaughn suggests an anaphylaxis to milk proteids due to their passage into the blood, unchanged by digestion, or an absorption of the split products of protein through the intestinal wall.

Finkelstein's theory⁷ that the abnormal absorption of sugar and salts cause fever, has been disproven even though his albumin milk is an extremely valuable corrective when limited to the first seven to ten days of treatment of the summer diarrheas. But children seldom gain in weight on albumin milk alone.

In any acute digestive disturbance low fats and sugars are certainly indicated, while higher proteins than we have until recently believed advisable are now known to be well borne and beneficial.

Protein food may be used in almost any gastric or intestinal troubles, acute infections, fermentations or putrefactions and is best when made from skim milk. It may be used without preliminary starving or purgation and may be combined with plain milk. We may change to milk formulas abruptly without any signs of disturbance. Even mother's milk may be combined with albumin milk with much benefit in any of the above mentioned disturbances in digestion.

In closing permit me to leave with you for discussion the following summary of this brief paper:

1. That casein indigestion may occur whether the proteids are high or low.
2. When proteids are too high, colic and constipation occur invariably; curds in the stools of white masses or lumps, sometimes gray or green and coated with mucus and expelled with effort; fever and other constitutional symptoms.
3. Too low proteids; loss in weight, anemia, small stools, usually loose because of too high fat and sugar.
4. Anaphylactic shock because of absorption

of split products of protein indigestion; simulating all symptoms of anaphylaxis.

5. Since infants differ so greatly in their ability to digest proteids it is a safe rule to begin low, .33 per cent. in the new born, and increase very gradually by percentages not over 0.25.

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DIGESTIVE DISTURBANCES OF INFANCY OF BACTERIAL ORIGIN.*

ROBERT A. BLACK, M. D.,
CHICAGO, ILL.

In no specialty of medicine are we so liable to specialize on one particular fad as we are in pediatrics.

So much was and still is unknown of the digestive disorders in children that we all grasp with eagerness each step made forward, and frequently for months do we go off on a tangent and follow that one new idea till we finally separate the good in it from the indifferent and bad. Then frequently, we even temporarily discard the good in it while we pursue some new fad. Along in the '80s, the literature teems with investigations as to the affect of heat, of surface water, of atmospheric conditions, and of overcrowding. Later in the '80s, and early '90s, bacteriological studies appear in most all of the current literature and all efforts were made to find a sterile food with practically no change during this period in infant mortality. This was then followed by a study of the various enzymes in milk, which were proven common to all milk and to a great extent, specific to each variety of milk; and digestive ferments were added freely to the milk. But today, the impression is that the value of enzymes and ferments has been much exaggerated and that they are really of very little practical importance.

Along, beginning in the '90s, Czerney and his pupils began, by research, to try to prove that the nutritional disturbances in babyhood were not due to bacteria; to heat; to insufficient absorption; to failure of enzymes; but rather to

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poisons, especially acids formed from food materials and faulty function in the course of metabolism, and since this time the current literature has teemed with this theory to the neglect of proper bacteriological work, so that the situation stands today,—bacteriological study of the acute bowel disturbances with our newer knowledge of bacteriology offers a most fertile field for study. Admitting all the truth in all the other theories, yet there still remain many pertinent facts in regard to the bacteriological infection of the bowels in infancy.

Kendall, in a thorough study of the intestinal bacteriology, makes the following statement: That the bowels of infancy show three bacteriological states:

First. Sterile. This lasts from four to eight hours. Second. Period of mixed infection, characterized by various types of bacteria; the kinds depending on circumstances. Seasonal variations play a prominent part in determining the kinds and number in the semi-meconial stools. As a rule, in warm weather the bacteria are more varied and numerous than during the cool weather. After the third day there is a sudden increase in the number, due to the entrance of food into the intestines. The common organisms found at this time are the *Koppehen bacillus* of Escherich; bacilli of the *subtilis mesentericus* group; bacilli *coli comminus*; bacilli *proteus*; bacilli *lactis aerogenes*, and some cocci, principally of the *micrococcus ovals*. This second period changes slowly into the typical intestinal flora for infants or the normal nursing flora. Here are found the *B. bifidu*, *micrococci ovals*, bacilli *coli*, bacilli *aerogenes*, *acidophilus*, in the upper level, the duodenum and jejunum. The *micrococci ovals* in the lower jejunum, the ileum and the ileocecal valve. The bacilli *coli* and bacilli *acidophilus* in the cecum, while the bacilli *bifidis* appear to dominate the transverse colon.

Disregarding for the present time the pathogenic bacteria and thinking only of the common saprophytic bacteria in milk of which we have two large groups: the acid forming and the proteolytic. The acid forming; mostly non-pathogenic streptococci, cause a fermentation of the sugar with volatile acid and a precipitation of casein. These bacteria are easily killed by heat, but the question is still open as to whether the

protoplasm of these acid producing bacteria do not contain much poisonous matter, and while we still know little definite on this subject yet the latter investigation of Jenner and Figari show that many morbid intestinal symptoms may be referred entirely to this cause. The second class of milk saprophytes are those which split up proteids. They form spores and are resistant to heat. They therefore grow and thrive best in milk that has been improperly pasteurized, on account of many of the acid germs being killed. These bacteria may not be harmful alive, but investigation by Flugge and Lubbert show that it is not always the poisons produced by bacteria that are toxic, but that often the poison is due to the protoplasm of the bacteria themselves. Clinically, we see many instances where such might seem to be the case, but clinical proof is lacking or inconclusive; although certain writers still give adherence to the old statement exemplified by Vaughn's tyrotoxon. In this field there still seems to be a volume of work to do. Of the pathogenic bacteria found sporadically in infant's food we lately have much more positive data; much of it though incompletely worked out.

Damourette has done much work on this subject, and in his monogram cites many cases of dyspepsia, even fatal cases, from the taking of pus milk where the mother has had infected breasts or has suffered a general blood infection. This work of his has been followed up in an even more thorough manner by Moro. He examined apparently normal breasts and commonly found staphylo and streptococci; occasionally the colon bacillus and bacillus *acidophilus*. Less frequently still, he found mycelium and sarcina types. He followed up further a number of breast-fed babies from these mothers and found in them occasional acute attacks of intestinal catarrh. These usually developed suddenly and were accompanied with spurting gaseous movements of a thin, light yellow with a slight greenish tint; less often a flocculent slimy diarrhea, with small masses of mucous and some tenesmus. Stains taken from these stools showed instead of a normal bacteriological flora many clumps of staphylococci; a few unidentified larger cocci usually arranged in pairs and in short chains. He then took a normal child and nursed it on one of his staphylococci breast cases and found that

in a short time he got a characteristic dyspeptic stool.

Rosthorn reports an epidemic of intestinal catarrh of a somewhat like description which occurred in a lying-in hospital during his service, in which staphylococci had entirely displaced the normal bacteriological flora. We all frequently see occasional cases in our practices which can only be accounted for by this etiological factor, and it would behoove us, with our nursing mothers, to pay more attention to the hygiene of the breast and to see that nipples, etc., were properly cleansed. The digestive disorders met with in other diseases of bacteriological origin need only to be mentioned. Of these, we all recognize a distinct bowel infection due to the influenza bacilli, frequently with most severe gastrointestinal symptoms. The same is true of many of the febrile catarrhs of the respiratory tracts. Whether these digestive disturbances are caused by actions of the toxins systematically or through a direct extension of the bacteriological process, or through a poisoning by swallowing the secretions, is as yet an unsettled fact and offers a good working field. These cases are characterized by frequent movements with considerable gas distension when there is much mucus and foul smelling, and practically are always accompanied with vomiting, which condition in infants is usually quickly controlled with the stomach pump.

The digestive disorders due to the acute eruptive childhood diseases are frequently accompanied with vomiting and diarrhea. There is still little known as to their direct cause or their intestinal flora, and it is usually accepted that they are due to toxic central influence. The bacteriological infections of the bowels due to contaminated food are even more common than the one just referred to. Recent literature along this line tends to blame the streptococci in the majority of cases and it seems to be due in many cases to streptococci contaminated milk. As many men of note speak of finding pathogenic streptococci in milk, having their source in infected udders, infected hands of milkers and stable dirt; later, finding the same strain of streptococci in the infant's bowel movements. The clinical picture of these cases is the picture of a severe infection, with much prostration, and at the onset a slight fever. Apparently, at first,

localized in the large bowels with small frequent mucous stools becoming bloody early; frequently spreading them up into the small intestines with an increased rise in temperature as the lymph tissue becomes further infected.

These cases are also frequently accompanied by erythema rashes; hemorrhages in the skin or visible mucous membrane. These cases also frequently show marked meningeal symptoms and a tendency to have bronchial pneumonia and various other infections located outside of the intestinal tract. Specific treatment with streptococci serum has been of little avail. Infections with the bacillus pyocyaneus is also another common infection and five times I have gone through epidemics of it in children's wards in hospitals with which I am associated. As a rule, our causative case has occurred during a convalescence from a bowel disorder. There has been a sudden rise of temperature with increased tympanites, an increased diarrhea, and usually a severe involvement of the whole organism, which has been of short duration. The stools are characteristic; they are a bright green in color. Where the infection is located mainly in the large bowel, the stools are much fuller of mucus and often have a blueish tinge rather than a green. General infection does not seem to occur as frequently as with streptococci and cases usually recover.

The bacillus of dysentery is probably third in order of frequency and some time ago much work was done along this line by Holt and Flexner, who have published a result of their investigation. They show that the infection may be either acute or sub-acute. Clinical symptoms present all variations, from the mildest to the most severe gastrointestinal intoxication. The stools are characterized by a mixture of food particles and mucus. The diagnosis is made by finding the bacillus, which seems to be located mainly in the clumps of mucus. The most common type seems to be a catarrh of the large bowel with mucus, mucopurulent and bloody stool with tenesmus. The bacillus aerogenes commonly found on green vegetables probably is causative of many gaseous diarrheas in older children. My attention was brought to this by the late A. H. Ferguson forbidding any of his cases eating any green vegetables, either before or for a certain length of time after being operated on, contending that

such cases were much more tympanitic. The colon bacillus was much more used as a causative factor in the literature some time ago but appears to be in disuse at present. Occasionally the proteus bacillus seems to cause a severe cholera infantum type.

In regard to the treatment of these infections as a whole; the serums and vaccines have as yet proven very unsatisfactory and the treatment at present is directed mainly toward a general hygiene; free administration of water; low diet during the acute onset; a preliminary catharsis; intestinal irrigation, and with many, the administration of intestinal antiseptics such as salol, betanaphthol, and bismuth. Latterly, the administration of lactic acid bacilli has proven a valuable addition. The culture should be fresh and known to be from a reliable source and given in full size doses. I am confident that many cases that I have seen during the past year have been much benefited by the lactic acid treatment. The disease has been cut much shorter; the toxic symptoms have been improved and we have been able to get the child back on a full diet much earlier than by using the older intestinal antiseptics.

MYOMA AND PREGNANCY.

HENRY F. LEWIS, M. D.

CHICAGO, ILL.

Professor of Gynecology and Obstetrics in Loyola University.

Myoma of the uterus complicating pregnancy, labor and the puerperium may be a serious complication but is not necessarily dangerous. Our attitude to it has changed considerably during the last few years, tending towards a greater conservatism than formerly. We no longer think it imperative to perform hysterectomy or even myomectomy, because we have made a diagnosis of fibroids coincident with pregnancy. Even many or large tumors have been found to adapt themselves to the growing pregnant uterus; to flatten out within the wall and often to cause little inconvenience.

In many cases the tumors grow more rapidly during pregnancy than before; in others they diminish, even to the vanishing point. Aseptic necrosis of a tumor during pregnancy, probably due to diminishing blood supply because of pressure, sometimes leads to absorption. Opitz re-

ports such a case where the tumor diminished from the size of an adult head so as to be no longer palpable.

It is more common, however, for the tumors to take on an increased, even an excessive growth during pregnancy. In some instances hysterectomy is necessary because of severe symptoms due to the rapid enlargement. The subserous tumors are more likely to diminish and the intramural to increase. The former are usually pedunculated and receive their blood supply through a few vessels within the pedicle. Therefore this source of supply is more easily cut off as the uterine wall stretches with the enlargement due to the growing ovum. The intramural fibroids receive their blood supply from vessels of the uterine wall which enter the tumor from all sides. These vessels are enlarged because of pregnancy and therefore supply an additional amount of nutrition to the tumor.

Pedunculated submucous tumors are also very prone to become atrophied or necrotic. They are compressed between the uterine wall and the growing fetus much as a defective twin is sometimes compressed into a fetus papyraceus. Fibroid polyps may lie in the lower uterine segment and be forced down in front of the presenting part, sometimes being expelled before the fetus. Such tumors and the relatively uncommon cervical fibroids are often called fibromyomata previa.

Schütze reports two cases illustrating the effects of necrosis of myomata upon the course of pregnancy. In the first, on account of torsion of the pedicle of a subserous myoma, laparotomy was performed and the tumor removed, along with a second myoma discovered at the time. The patient who was in the third month of pregnancy, promptly aborted. One year later she went through a normal labor. In his second case signs of diffuse peritonitis caused him to remove a softened and rapidly developed myoma which lay deep in the uterine wall. The uterine cavity was opened and therefore he was compelled to remove the five months' ovum through the incision in the fundus.

So-called red degeneration of myomata seems to be more prevalent during pregnancy than otherwise. Smith and Shaw report a series of cases. They divide red degeneration etiologically into two classes; thrombotic and angiomatous.

The thrombotic fibroids are of a deep red color which remains even when the specimen is placed in Kaiserling's solution. There is no free blood on the cut surface or in the tissue of the tumor. The clinical symptoms are pain and tenderness in the abdomen, quick growth of the tumor, rise of temperature and of pulse. Sometimes the case is mistaken for rupture of an ectopic gestation sac and the true diagnosis is shown by the laparotomy.

The angiomatous fibroids are bright red, which color dissolves in preserving fluids. The color arises from the large amount of blood in the tissue of the tumor and not from hemolysis and the hemoglobin content. The clinical symptoms are little more than slight bleeding and a feeling of weight in the abdomen. These angiomatous red degenerated fibroids are good media for microorganisms and therefore infection is not uncommon.

Six cases of thrombotic and three of angiomatous red degeneration of fibroids were combined with pregnancy.

The results of myomata upon labor are often marked. Dilatation is usually delayed. The influence of the tumor varies greatly, depending upon its location in the uterus. Tumors in the upper two-thirds will usually flatten out and cause little trouble except as they interfere with contractions and thereby delay the progress of labor.

Tumors in the lower portion of the uterus act as mechanical hindrances to labor by obstructing the parturient canal. They lie in front of the presenting part and prevent advance until they are pushed aside by its pressure upon them or by manual pressure. The amount of interference of such tumors depends upon seven factors: (1) size of the tumor; (2) degree of lowness of its position in the parturient canal; (3) degree of mobility allowed by its attachments; (4) size of the presenting part (usually the head); (5) roominess of the passages; (6) strength of the parturient forces; (7) obstetrical skill of the operator.

The fetus is enabled to pass in spite of the obstruction offered by the tumor because of three factors: (1) the tumor is forced out into the world ahead of the fetus, torn from its pedicle or attachments; (2) the tumor slips as far as pos-

sible to one side and ascends, because its pedicle or attachments are strong enough to pull it up or the obstetrician is skillful enough to push it up; (3) the relative sizes of tumor and presenting part are such that the fetus is able to pass through the canal beside the obstructing tumor.

Lynch has recently observed that abnormal presentations are much more frequent in the presence of uterine fibroids than in the non-pregnant uterus. He found that breech presentation occurred in 22 and transverse in 18 per cent. In 20 per cent placenta previa was observed and in nearly 5 per cent, ectopic pregnancy.

In Schauta's clinic during the six years—1895-1900, there were 84 labors complicated with myoma. Among these cases were 5 of breech and 4 of transverse presentation.

Labor is usually prolonged, especially in primiparae. Troell of Lund, Sweden, found an average duration in primiparae of thirty-three hours. Prolapse of small parts and of the cord results more frequently because of faulty presentations. The cervix dilates more slowly and the membranes rupture prematurely in a large proportion of cases.

During the puerperium myomata often spontaneously diminish in size. Sometimes for months after labor the uterus with its tumors appears on examination distinctly smaller than before pregnancy occurred. This tendency to decrease is sometimes intensified during lactation. Prolonged lactation often causes a superinvolution of the normal uterus and may cause inhibition of growth of the tumors, composed as they are of similar tissue to that of the uterine wall, and obtaining their nutrition from the same sources. Prolonged lactation has even been recommended by certain authors as a therapeutic measure.

Myomata are probably affected by the retrogressive changes going on in the uterus during involution. They may become very small, even to complete retrogression. Gusserow and Doran each have reported 13 such instances. It is difficult to tell whether the diminution began during the puerperium or during the pregnancy. Even during pregnancy it is often not easy to differentiate between the growth of the tumor and that of the pregnant uterus itself. In most cases the physician has had no opportunity of examining the tumor or the patient before he is called to see her on account of pregnancy or

labor. Therefore, he seldom has any means of measuring the growth of tumor or uterus.

In many cases it has been observed that fibroid tumors increase in size at each of successive pregnancies and diminish during each puerperium.

As a general rule, however, although fibroid tumors may decrease during the puerperium and during lactation, yet they usually soon begin to grow again and continue their growth. In most cases it is probable that this renewed growth begins early after labor and continues at a faster rate.

A potent danger from myomata in the puerperium is that of gangrene and infection. Especially when lying low in the uterus, are they liable to trauma during the difficult labor, to have their blood supply impaired, or to become infected. Freund, Gemmel and LePage report recent cases where they were obliged, on account of necrosis and infection, to perform myomectomy or hysterectomy during the early days of the puerperium.

On account of weakened contractions, complete exhaustion of the uterus, or interference with retraction due to the presence of fibroid masses in the uterine walls or cavity, post-partum hemorrhage is not infrequently observed. The same causes often prevent spontaneous discharge of the placenta and interfere with manual expression by Credè's method. Therefore manual removal of the placenta may be necessary with its attendant dangers of trauma and of infection.

The placenta is sometimes implanted upon the endometrium immediately over the myoma. In such cases adherent placenta is very probable. Ruge reports two cases of insertion of the placenta upon the site of myomata of the anterior wall. In both hysterectomy was required.

Placenta previa is rendered more likely when the uterine canal is disturbed by fibroids, which may interfere with normal imbedding of the ovum. In such cases it will often be necessary to perform Cesarean section followed by hysterectomy.

The diagnosis of myoma complicating pregnancy or of pregnancy complicating myoma (two different things) is usually a matter of much difficulty. By the former I mean that the pregnancy is the dominant feature and the tumor

secondary. Pregnancy is observed and careful examination shows the presence of one or more myomata, either pedunculated or relatively small sessile subserous tumors. In such cases pregnancy is diagnosed in the usual manner and examination shows the tumors. The most common symptom indicative of disturbance due to these tumors is severe pain. Sometimes this is sudden, sharp and referred to the umbilical region, or to the region where a tumor can be felt. Sometimes the pain is more gradual in onset, but its intensity is usually progressive. When a subserous fibroid undergoes torsion of its pedicle the main features of the attack are those of shock.

In pregnancy complicating myoma pregnancy supervenes in a uterus already infested with fibroid tumors. In these cases the pregnancy is an incident, while the tumors represent the dominant factor. Diagnosis is peculiarly difficult in such conditions. Cessation of menstruation is a poor guide because the fibroids have usually caused such irregular hemorrhages with intervals of freedom from bleeding that the patient seldom makes much note of time in relation to her uterine flow. On the other hand hemorrhages are frequent in such cases even when pregnancy does occur. Low attachment of the ovum may be caused by distortion of the uterine canal due to the tumors and consequently the placenta will be attached in the lower uterine segment. Thus we have another source of irregular bleeding in spite of pregnancy. Abortion is frequent or even the rule in these cases where pregnancy intervenes in a uterus already the seat of many sizeable fibroids. In such cases the diagnosis is often not made; indeed often not until examination of the specimen after hysterectomy.

Abderhalden's test would seem to be indicated to clear up the diagnosis. As yet many of us are not prepared to rely upon it as firmly as its advocates would have us. So much depends upon perfect technique in this test and perfect technique is so hard to obtain that in practice we are often compelled to assume an attitude of doubt whether the test be positive or negative. I believe that there is a greater proportion of negative results with Abderhalden's reaction in cases of pregnancy plus fibroids than in normal pregnancies and also that there is not infrequently a positive result in fibroids without pregnancy. At

best the test will be corroborative rather than conclusive.

Fuhrmann reports three cases which show the imperfect reliability of the Abderhalden reaction. The first is that of a nullipara on whom a laparotomy was undertaken with the intention of removing the uterus and appendages. When the belly was opened the uterus appeared to be pregnant at the third month, therefore the operation was confined to removal of an ovary and loosening of some adhesions. In spite of denials of the possibility of pregnancy the Abderhalden test was positive and the pregnancy progressed normally.

A young multipara exhibited a uterus which was evenly enlarged so as to extend to the level of the umbilicus. The menses, however, had continued regular to the day. Abderhalden's reaction was negative. Under the narcosis for operation upon the supposed fibroid tumor a vaginal examination was made and fetal small parts were made out. The uterus contained a dead fetus of five months gestation.

A multipara of forty-two years of age had menstruated regularly until six months before entrance; for three months the abdomen had been progressively enlarging and now appeared like that of a seven months' pregnancy, with scanty amniotic fluid. Abderhalden was positive, although the woman denied coitus for the past eight years. X-ray examination was doubtful. Laparotomy disclosed a papillary cystadenoma of the ovary, containing five liters of fluid.

Interesting from a diagnostic standpoint are the not rare cases of myoma with ectopic pregnancy. Here the indicated treatment naturally is salpingectomy with hysterectomy or myomectomy. Here also Abderhalden's test will mislead, because it is likely to be positive on account of the extra-uterine gestation. On the other hand failures of the test are more common in cases of ectopic than entopic pregnancy. This is easily accounted for when we remember that the test is not supposed to be distinctive before the ninth week of pregnancy and most tubal sacs rupture or abort before that time.

Treatment varies with conditions. The majority of modern authorities recommend watchful waiting in cases of myoma complicating pregnancy. Conservative treatment gives the best

prognosis. When, however, the tumors are very large or, especially, when some of them occupy the lower portion of the uterus where they threaten to obstruct delivery, it may be permissible to perform hysterectomy. This operation should be reserved for cases where it is evidently dangerous to allow them to go on to term.

If severe symptoms appear when fibroids complicate pregnancy, that is, when pregnancy is the dominant condition and the fibroids are secondary, enucleation is the operation of choice. The symptom indicating such interference will usually be severe pain.

I have in mind a recent case of my own. The patient, a primipara of thirty years, was taken at about the sixth month with severe pain in the abdomen at the level of the umbilicus and about four inches to the right. A small movable lump about as large as a walnut could be felt in the region mentioned. This mass was so freely movable and seemed so near the skin that there was some doubt whether it was not an omental hernia through some weak place in the fascia between the rectus and transversalis. Pain continued so persistently and was so severe that operation seemed indicated. The incision was made over the tumor and continued into the peritoneal cavity, where it revealed a sessile subserous fibromyoma on the fundus of the uterus near the insertion of the round ligament. This was removed by enucleation. The patient made a good recovery and was delivered of a normal child after a normal labor at full term.

According to Scipiadès only one-half of the cases of myoma and pregnancy go to term, although over three-fourths are delivered spontaneously. He, with most others, recommends expectant treatment during pregnancy. If severe symptoms call for intervention enucleation (myomectomy) is recommended. Only in exceptional cases is hysterectomy advised.

A recent series of seventeen cases of pregnancy and fibroids is reported from the Würzburger clinic. Six cases were treated conservatively; in four myomectomy was done during pregnancy; in two myomectomy during the puerperium; in one case myomectomy during labor; in four cases hysterectomy during pregnancy.

Treatment during labor should follow conservative lines until more strenuous indications appear. Fournier advises waiting four hours af-

ter beginning of pains before instituting radical measures. Pinard advises waiting even longer in breech presentations. Three-fourths of deliveries in the presence of fibroids are spontaneous. Operation requires strict indications but is imperative when these indications arise. The main indication is obstruction.

Some obstetricians still advise trial of version and extraction when the head is obstructed by a low-lying tumor. Others advise trial of the forceps. Both of these measures render inadvisable or dangerous the only proper treatment, namely, Cesarean section. The preponderance of obstetrical opinion in this country is by all odds in favor of Cesarean section in all cases where the labor is delayed by obstruction from any cause. This proposition has the corollary that conditions favorable to Cesarean section shall exist and be maintained. Therefore attempts to deliver by pushing up the obstructing tumor, by version and extraction, by forceps or by other purely obstetrical operative procedures are contraindicated. The conclusion is therefore inevitable that delivery should be by Cesarean section, after waiting a reasonable time to see whether spontaneous delivery is possible or probable.

Troell, whose monograph, published in 1910, is exhaustive of the subject up to that time, has tabulated the operative treatment of myoma complicating pregnancy, labor and the puerperium as shown in the world's literature for the decade 1900-1909. A résumé of his tables follows:

During pregnancy: Enucleation of tumor by laparotomy; 157 cases, 23 aborted, 5 deaths of mothers.

Enucleation per vaginam; 7 cases, 2 aborted, 1 death.

Supravaginal amputation; 128 cases, 1 death.

Total hysterectomy; 74 cases, 3 deaths.

During Labor: Extirpation of tumor per vaginam; 14 cases, 1 death of mother, 5 of children.

Enucleation by laparotomy; 3 cases, no deaths of mothers, 2 of children.

Conservative Cesarean section; 25 cases, 3 deaths of mothers, 1 child.

Porro Cesarean section; 43 cases, 3 deaths of mothers, 4 of children.

Cesarean section with total hysterectomy; 20 cases, 2 deaths of mothers, 2 of children.

Cesarean section with enucleation of tumor; 20 cases, 3 deaths of mothers, 2 of children.

Total or supravaginal hysterectomy without opening of uterus; 15 cases, 2 deaths.

Landau in a recent article has well epitomized the modern ideas of treatment of myoma in connection with pregnancy. He divides these cases into four classes:

(1) Myomata, which give rise to no untoward symptoms during pregnancy and which threaten no complications during labor. These cases require no treatment.

(2) Myomata, which cause severe symptoms during pregnancy. These cases may require enucleation of the tumor from the gravid uterus. Landau reports fourteen such cases in which he performed myomectomy, thirteen of which went to term and several of which had normal labors later.

(3) Myomata, which cause no symptoms during pregnancy, but which threaten complications at the time of labor. In these cases Cesarean section should be done at term, followed by hysterectomy.

(4) Myomata, which threaten danger to life if the pregnancy continues. Artificial abortion is rejected by most modern authorities because of danger of complications, technical difficulties in its performance and the fact that it permits further pregnancies. In these cases hysterectomy of the gravid uterus is recommended. Landau had 31 such cases, all with good results.

PSEUDO-MYOPIA.*

A. C. RAGSDALE, M. D., C. M.,

Professor of Ophthalmology, National University, St. Louis, Mo.

METROPOLIS, ILL.

This name given, unfortunately, to a condition, or set of conditions, does not truly express the pathology of the case, but like other instances of misnaming we have come to accept it and understand what is meant by the term. There is really no such thing as a pseudo-myopia. The case is either one of myopia, or it is not myopia. A condition resembling something else, other than what it really is, should be given a name which would at once carry to the mind of the reader just what is meant and not a pseudo-

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which might lead to a mistaken idea of the conditions present.

Attention to this so-called condition was brought to the ophthalmologists several years ago, by whom I do not recall, but it has been brought forcibly to my attention several times, of which I will speak later.

In order to intelligently understand what is meant by pseudo-myopia it will be necessary to go back and build up a case of myopia and then add to that the pseudo-variety. Myopia is commonly known as "near sight," and we speak of an individual who suffers from it as being "near-sighted" or myopic. The real conditions are as follows: A myopic eye is one in which the optical axis is too long. The anterior and posterior poles are too far apart, or the refracting media, i. e., the cornea and lens, have too much curvature. Either of these conditions will cause parallel rays of light entering the eye to come to a focus somewhere in the vitreous body in front of the retina, instead of focusing on the retina as is the normal condition. In other words, a myopic retina is placed beyond the principal focus of the dioptric system and instead of a clear image on the retina there is a blur, because the rays of light have crossed in the vitreous and they strike the retina in a divergent manner.

Patients suffering from myopia, hold objects near the eyes, nearer than they do in emmetropia or normal eyes, and still nearer than they do in hyperopia or far sight. When objects are brought closer to the eye, the image is thrown farther back and this is necessary in myopia because the axis of the eyeball is too long and the retina is beyond the principal focus, and to see distinctly the patient must bring objects nearer than the near point of distinct vision for the normal eye.

The size of the retinal image depends upon the visual angle and the distance objects are held from the eye. The greater the visual angle the larger the retinal image, also the nearer objects are held the larger the image. By visual angle we mean the angle formed by lines drawn from the extremities of the object looked at, converging at the nodal point or optical center of the dioptric system of the eye, then diverging to a corresponding point of the image on the retina.

If the object is brought closer—as in myopia—the visual angle is increased and the size of the retinal image is increased correspondingly. So this is why the myope holds objects closer than normal in order to see distinctly.

Some cases of hyperopia or far sight in children simulate myopia, because the child holds objects too near in order to increase the size of the retinal image; also the same is sometimes true in cases of asthenopia or weak eyes. Imperfect distant vision from hyperopia alone is uncommon in early life, and is only met with when the hyperopia is of high degree. Cases of this kind are frequently mistaken for cases of myopia. The child inclines to hold things very close because of his impairment of vision, and by holding the object very near he gets a larger retinal image. Then his strong convergence is accompanied by a strong contraction of the pupil, which renders his retinal image more distinct. This is the condition known as pseudo-myopia; false or misleading symptoms which have caused many inexperienced refractionists and so-called opticians to prescribe concave glasses for hyperopic people. I have had many patients brought to me with the statement that they were "near sighted," and could not see to read without bringing the book very near to the eyes, and not knowing the reason why, naturally supposed they were "myopic or near sighted." I remember the case of a young lady teacher who consulted me several years ago and stated she always suffered from head-ache when she read much and being a teacher she was forced to use her eyes almost constantly during the day and had to prepare her work at night by lamp light. She had been prescribed for by a traveling spectacle peddler who had given her a minus 1.00D. and told her she would have to wear them constantly, or she would finally lose her sight. Placing confidence in the quack she had obeyed orders for over a year, when she called upon me. She told me she was near-sighted and had to hold her book close to her face in order to read. When I measured her vision I found she had hyperopia of 2.00D. and when the glasses were put upon her face she remarked that "no one could know but her what a relief it was." I earned her everlasting gratitude, relieved the headache and saved a very useful pair of eyes.

The main object of this paper is to call attention to the fact that all people that hold objects very near the eyes in reading are not myopic, but a great many do so to increase the size of the retinal image and enable them to see better, when in fact they are either hyperopic, astigmatic or asthenopic.

NITROUS OXIDE-OXYGEN ANOCI ASSOCIATION IN PRACTICE.

DON W. DEAL, M. D.,
SPRINGFIELD, ILL.

In visiting large clinics where nitrous oxide is used in combination with nerve blocking, I was at once impressed with the superior technique and results obtained. At the same time I was impressed with the apparent difficulty of adopting the method in the average operating room and became convinced that it must be limited to a few institutions that are especially fortunately situated.

Later, however, I learned that a few surgeons in distant cities were successfully using the anoci technique, having adapted it to ordinary operating room conditions. Upon learning this, I again visited Cleveland to further familiarize myself with the practical side of the work and to make arrangements for the training of my own anesthetist in the operating rooms of Lakeside Hospital. I was convinced that a well trained nitrous oxide anesthetist must be essential to the safety and success of the method.

I was fortunate in securing a physician not only willing to undertake the work, but keenly interested in it.

After his training was completed at Lakeside, and after I had made other visits to Cleveland, we secured the special apparatus necessary and began, six months ago, to use nitrous oxide-oxygen anoci association and I have felt that its employment has been successful since the beginning. I appreciate that a large part of this success is attributable, not only to the well trained anesthetist, but, what is almost of equal importance, a permanent surgical assistant familiar with my personal methods and conversant with the principles of the anesthesia involved.

In my opinion, Crile's efforts in the last decade have added the greatest single factor in reducing accident and mortality in surgical work and, in

addition to this essential advantage, the method returns the patient to normal health in the briefest possible time.

The prime object of this method is to operate with the production of the least possible amount of shock. Haste is not advised, but there is an advantage in acquiring that character of speed which comes with thought, training and experience. Likewise, in the reduction of shock, the patient must approach the operation with the highest degree of optimism and the gentleness in handling the patient during the operation is an important factor in success.

Worry and fear undoubtedly materially reduce the resistance, and the success of the surgeon and his assistants in instilling a spirit of optimism is an important part of the procedure.

Briefly, the anoci theory, as taught by Crile, assumes that potential energy is stored in the brain, liver and supra-renals and that the discharge of this energy, when sufficiently intense and protracted, is productive of the extreme condition called exhaustion or shock. Shock then is the result of the excessive conversion of potential into kinetic energy in response to the essential stimulation and this results in the same degeneration of brain cells and other changes that are found in hemorrhage, starvation, worry, insomnia and excitement.

These changes in the brain cells follow surgical operations or trauma, even though the patient be under ether narcosis. The fact that the patient is unconscious does not prevent the production of shock. Sensation reaches the brain unless the nerves carrying the stimuli are blocked.

Anoci, as described by Crile, contemplates all prevention of shock and includes the reduction of fear. It includes the administration of nitrous oxide; the blocking of all nerves with novocaine before the tissues are cut; the gentle handling of the patient; carefulness in handling the tissues at the time of operation; injection of quinine and urea hydrochloride around the field to block off pain after the patient has awakened and the post-operative administration of sedatives if necessary.

With the idea of preventing shock, it is my routine practice to give the patient 1/6 grain of morphin and 1/150 grain of scopolamin by hypodermic a half-hour before operation. This re-

duces worry and also reduces the amount of anesthesia otherwise required.

The selection of the anesthetic for inhalation is a matter of great importance to this method and has a decided influence upon shock prevention. Shock and degeneration of the brain cells are produced by the rapid conversion of potential into kinetic energy and in this change oxygen is a necessary factor. One would expect to find that a given amount of trauma under an anesthetic like nitrous oxide, which prevents oxygen reaching the brain, would produce less shock than an equal amount of trauma under ether which is a lipoid solvent. Crile has shown experimentally that, with the same trauma, the shock is three times greater under ether than under nitrous oxide; that the fall of blood pressure is two and one-half times greater under ether.

In this experimental work, the condition of the animal was always noticeably worse under ether narcosis and that the toxic action of ether is much greater seems beyond argument or discussion. In my work in the operating room I constantly notice the protective effect of nitrous oxide. The odorless gas is much more pleasant than is ether, which gives the patient a feeling of suffocation and causes a certain amount of exhaustion, which is spared the patient in taking gas. Nitrous oxide is not only odorless; but few inhalations produce unconsciousness.

It is known that ether destroys the phagocytes, thus increasing the chance of infection, and not only is the immunity of the patient thus impaired, but there is also an increase in the coagulation time of the blood caused by dissolving many of the body lipoids.

In two step operations gas is especially desirable since the patient, having experienced no distress with the initial anesthesia, returns for the larger operation without concern and thoroughly reassured.

This method is superior to spinal anesthesia in which there is complete blocking of all operative trauma; but in which we cannot block psychic trauma. By the anoci method, pneumonia is reduced more than fifty per cent; post-operative nephritis becomes extremely rare; there is less likelihood of nausea and nourishment may be given relatively early. Often the patient does not miss a single meal.

Ordinarily, after anoci, only sedatives are

necessary and morphin is rarely indicated. The average case is so free from pain that the saving to the brain cells is enormous.

Occasionally, nitrous oxide alone does not give sufficient relaxation for operation. In such cases we never push the gas to the point of cyanosis, but add three or four per cent. of ether to the anesthetic for a few minutes. When relaxation occurs, we immediately return to the straight gas and oxygen and maintain relaxation.

We have never found it necessary to administer more than two or three drams of ether and at no time has the patient been conscious of its administration. In those cases in which it was found necessary to administer this small amount of ether, I am satisfied that a pound would have been required had ether been employed alone as the means of anesthesia.

In the hands of an expert gas anesthetist and one who uses anoci technique well, there is no question but that it is the safest of all anesthetics. At Lakeside Hospital, 35,000 such anesthetics have been given without mortality and Thomas, who has collected data on 271,000 consecutive gas anoci anesthetics, reports but one fatality. However, I believe that it is not more safe than ether when administered by an inexperienced person. Without my anesthetist and assistant, I should personally prefer ether.

In using gas, one must prevent the impulses of the operative field reaching the brain, and this is done by the use of infiltration of novocaine. Not only does this tend to prevent shock, but it reduces the amount of nitrous oxide required to a thoroughly safe point. Local anesthesia alone will prevent the impulses of the operative field reaching the brain; but the psychic ordeal, in knowing that the abdomen is open, may break down the strongest patient. Then, too, the relaxation is not satisfactory under local anesthesia alone and the patient is not entirely free from pain. In the combination of nerve blocking and the inhalation of gas, the inhalation anesthesia excludes the psychic stimulation of the brain cells and the local anesthesia protects the brain from the shock from the operative field. In this, it seems to be the ideal anesthetic.

The loss of body heat is not noticed in gas anesthesia and sweating is rare.

Since ether is so generally used, surgeons have come to accept as a matter of course post-opera-

tive pain, nausea and vomiting and post-operative neurasthenia. It is difficult for them to consider operative cases without discomfort of any sort. Permit me to recite briefly the record of a recent case of appendicitis. The appendix was not an easy one to deliver; but the case was clean and no drainage was required.

Mr. P. C. of Jacksonville, Ill., was operated on under gas anoci anesthesia at 10 a. m. The appendix was removed through a one-inch incision and the operation was completed in ten minutes. The patient did not go to bed after the operation, but awakened in the operating room before the dressings were applied and was placed on a wheel chair, where he staid until 4 p. m., when he was allowed to dress and to walk about the hospital. All of this time and during the time following he was entirely free from discomfort of any sort. The next morning he walked to a corner drug store, where he smoked a cigar, and at 12 o'clock he took a train for home—just twenty-six hours after the operation. He went about without the least inconvenience and the wound healed by first intention.

I have always let my patients up early after this incision and have never had a single case in which I regretted such action. In my entire experience I have never had an embolus develop and have noticed but two herniae, both of which developed in patients who were in bed for an unusually long time after operation. Van Hook, R. Morris and Bayard Holmes have had similar experience in their many years of practice. In all cases, vomiting is reduced to the minimum and it is rare to have the patient vomit at all. Post-operative pain is reduced by gentleness in handling the tissues and by blocking of the incision with a 1 to 500 solution of quinine and urea hydrochloride. The effect of this quinine and urea hydrochloride lasts from one to three days and either stops post-operative pain altogether or minimizes it. The solution used is so weak and is injected so far from the suture line that no bad effects have been noted from it whatever.

It is essential not to use much traction upon tissue and not to deliver tumors by assault.

The probability of post-operative neurasthenia is reduced because pain, shock and other degenerative factors of the brain cells are reduced under anoci and, although the operation may be protracted for an hour or more, the pulse is not accelerated. In fact, at the end of operation, the pulse is often ten to twenty beats slower than at the beginning. The so-called "painful sear"

on the brain is not produced. Inasmuch as shock does not reach the brain cells, the changes are negligible.

It is also noticed that backache is very rare under anoci.

In acute infections, such as peritonitis, nitrous oxide has a special advantage, in that it does not reduce the resistance by breaking down the phagocytes as is done by such lipid solvents as ether. In fact, shock and reaction, so often seen after operation for peritonitis, is not noticed when gas anesthesia is employed. There is no elevation of the temperature curve at any time. Gas preserves the body's energy and protects the brain cells from trauma.

In the absence of violent, dangerous reaction, with a sharp temperature curve, one never has the feeling that he has actually done harm in operating on certain cases of peritonitis, as he does in cases operated on under ether.

In rectal work done under anoci, the post-operative condition is changed from one of extreme pain to one of relative comfort.

In conclusion, permit me to give the history of a case of general peritonitis to demonstrate the method we employ in treating this condition.

First, we believe that Fowler's position is indicated and that, in operative cases, it is better to give the gas anoci because resistance is not broken down and there is no reaction. A solution of 1 to 500 novocaine is injected into the skin and fascia before the incision. The drainage should be carried to the lowest level of the pelvis and should remain there until the acute symptoms have subsided. Following these lines, I have yet to see reaction following an operation for peritonitis. The pulse and temperature are not elevated; but, on the other hand, are usually reduced by the operation. Quinine urea is injected into the fascia and also into the peritoneum about one inch from the line of sutures.

Following the operation, hot moist dressings are applied over the entire abdomen. By rectum, we give, by the drop method, a solution of sodium bicarbonate and glucose, using one ounce of each to the quart of water.

Ochsner's dietary is carried out. No cathartics are given; but enemata are substituted. Morphine is given freely until the respirations are down to normal or until the patient continues to sleep. Stimulation is very rarely given.

Occasionally one is called upon to operate in profound shock, or following a severe hemorrhage and, in these cases, a direct transfusion of blood is employed. In a recent case, I did a transfusion and, within a very short time, the hemoglobin rose from 30 to 70 per cent. The operation was then performed with safety.

Human blood is the only ideal form of transfusion since any other fluid will pass directly from the blood vessels into the surrounding tissues without being of any material benefit to the patient.

SUMMARY.

1. Nitrous oxide oxygen is much more agreeable to the patient. (a) More agreeable to inhale. (b) No unpleasant after-effects.
2. It aids materially in reducing shock.
3. It is safer than ether when administered by a skilled anesthetist. (a) Immediately. (b) Ultimately.
4. Less post-operative suffering following anoci.
5. Administration of novocaine prevents shock and reduces the amount of gas necessary for anesthesia.
6. Quinine and urea hydrochloride reduce after pain.

CHRONIC GONORRHEA IN THE MALE.*

Jos. L. BOEHM, M. D.,
ST. LOUIS, MO.

Abstract.

This subject has been selected by me because I believe it is an important etiological factor in many complicating diseased conditions of the viscera, bony and muscular structures either during or following gonorrheal diseases of the genito-urinary tract. The systemic symptoms of chronic gonorrhea occur by reason of either a prolonged gonococcal toxemia which manifests itself by exacerbations with chills, fever, myalgia, arthralgia, gastric disturbances and at times mild endocarditis. Very seldom during the chronic stage is the gonococcus found in the circulating blood, but rather toxins are absorbed from some local point of infection somewhere in the genito-urinary tract. On the other hand, if there is not a hematogenous infection gonococci

may travel along in the lymph stream resulting in a lymphogenous infection. These routes are the cause of as many complicating conditions as transmission of the gonococcus by direct continuity of mucous membrane. Bursitis is very common, especially of the bursa on the os calcis below the tendo achillis. Frequently exostoses of bone of gonococcal origin is seen most commonly on the os calcis.

In order to institute a treatment of a disease we must know its exact lesions. Just as diagnostic precision is essential in disease of the larynx, eyes, lungs, heart, etc., so it is with the diseased urethra and its adnexa. The term chronic urethritis, therefore, is as vague as gastritis or ophthalmia. Finding the gonococcus proves the contagious nature of the discharge. Still the absence of the gonococcus does not authorize a contrary conclusion, since in most chronic cases the gonococcus is found more as an exception than a general rule.

To arrive at a precise diagnosis and apply a rational therapy, we must resort to urethroscopy. The urethroscope enables us to follow step by step the progress of the cure and to recognize when the patient may be considered as well. We must, therefore, agree that the reliance on bacteriologic and microscopic methods solely for diagnosis without using clinical means is a one-sided procedure and in no case should one method be used alone but all three combined. The local symptoms may show either a urethral discharge or merely a glueing of the lips of the meatus in the morning or a single morning drop and no discharge whatsoever. The urine may be macroscopically clear so that the urine serves for no purpose of clinical diagnosis. By far the larger number of cases of chronic urethritis and complications pass shreds in the urine. Such shreds are often misinterpreted by many physicians, who mislead themselves and the patient by reason of a serious misapprehension, that while there are shreds or filaments in a patient's urine he is not cured of a gonorrhea. The presence of small numbers of non-bacterial shreds in clear urine does not necessitate treatment; they may persist for many months or years and are harmless. This is a point well worth remembering in making life insurance examinations. Urethral shreds consist of strings of mucus in which are imbedded

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epithelial cells in varying proportion with or without bacteria.

The three cardinal principles of diagnosis in chronic urethritis consist in ascertaining the position of the lesion, in recognizing its nature and in forming a conclusion as to whether the condition is an acute exacerbation on chronically diseased mucosa or not. Therefore, examination of urine, palpation and rectal examination and microscopical examination of a discharge, if any, and urethroscopic examination are all essential for a proper diagnosis in order to follow a rational line of treatment.

The first step is to determine the presence or absence of the gonococcus. To successfully treat chronic gonorrhea as well as other genito-urinary diseases requires a bacteriological laboratory annexed to the office. Examination of a smear from the urethra is only a small factor in the chain of corroborative diagnostic evidence.

So-called sexual neurasthenia is a vague term and is, as a rule, due to chronic urethritis either of gonorrheal or non-gonorrheal origin, which sooner or later diseases the prostate gland and seminal vesicles.

This condition exists in a very large percentage of our male population. The urethroscope bears the same relation to the urethra as the stethoscope does to the heart or the x-ray to fractured bone. The urethroscope permits us to tell exactly in which portion of the urethra the lesions are to be found. For diagnostic purposes it gives infinitely more accurate information than any other method of examination.

For therapeutic purposes it gives the means of treating lesions with astonishing precision so that it is absolutely indispensable in the treatment of chronic urethritis. Without our serological tests today, we would be at a loss to determine whether gonorrhea or syphilis in a given case is cured or not.

Just as the Wassermann test is a *sine-qua-non* in the treatment of latent syphilis, so is the gonorrheal complement fixation test in chronic gonorrhea. This test should be made in all cases of previous chronic gonorrhea contemplating matrimony. I never give my consent to marry until such a test is made. From the statistics of my laboratory in about 85 per cent of cases it shows whether or not there is a gono-

coccal nidus still in the patient. Just as important as any mechanical or medicinal agent in treatment is the use of vaccines and serums.

In acute gonorrhea, by a long series of tests and experiments in several hundred cases, I have concluded that vaccines should not be used and are of no benefit, for at times they do a great deal of harm. In chronic cases, however, vaccines have an efficient field. I use altogether autogenous vaccines made in my own laboratory and do not rely on stock vaccines made by the manufacturers. Get a culture of the patient's germs from his prostate and seminal vesicles and urine and then make up his autogenous vaccine. While all cases are not cured alone by the use of vaccines so prepared, still they are indispensable in treatment. Often in chronic gonorrhea I have found the colon bacillus infecting the kidney pelvis and a staphylococcus and gonococcus infection of the prostate gland and seminal vesicles.

Hence a combined vaccine of these three microorganisms must be made and we will come closer to hitting the bull's eye in treatment.

When may a gonorrheic patient get married?

We must repeatedly examine his urinary shreds microscopically, by staining, and finding no gonococci we must go farther. Apply a provocative injection of one or two per cent. silver nitrate solution to the urethra; a reactive irritation of the mucosa causes a discharge more or less copious and of short duration. Examine such a discharge several times for gonococci. Failure to find same does not now justify us in drawing a negative conclusion. We must now resort to cultures with serum agar, etc., which requires the skill of one versed in bacteriological technic. Make a complement fixation test of the blood. Now if all these are negative we have decided the question from a bacteriological standpoint.

We must now examine the whole urethra with urethroscope and possibly the urethral mouth of the bladder with a cystoscope in order to eliminate the presence of any lesion, such as erosions, beginning urethral strictures, etc. We may then give our consent to matrimony, supplementing same with a statement such as this: I have used all scientific means of investigation known to the medical world. I find these tests to be negative. While it is still possible that you may have

some latent gonococcal focus in your genito-urinary tract it is not apparent to me. With this knowledge I give you I am relieved of any and all responsibility.

NOT VERY WELL KNOWN CAUSES OF HEMATURIA.*

JOSEPH WELFELD, M. D.,

CHICAGO.

Attending Urologist at St. Mary's of Nazareth Hospital, American Hospital and West Side Dispensary.

The medical profession at large has been rather slow to recognize the appearance of blood in the urine as a symptom of great importance. This importance being not generally admitted, it behooves us to seek out all possible causes for such a symptom and particularly to direct our attention to certain conditions which as a rule are not generally thought of in connection with hematuria, especially the cases of profuse hemorrhage. The average medical man is in the habit of ascribing such cases as these to one of two conditions, either a tumor of the bladder or a surgical kidney. Their views being narrow, they are likely to overlook the possibility of other conditions which may be the real etiologic factor.

At the very outset I am free to state that the urethra itself may be the cause of profuse recurring hemorrhages from either of the two following pathologic conditions:

Quite frequently, as a result of a gonorrheal infection fissures or rhagades form in the urethral mucosa which, as linear ulcers, become covered with granulomata. Such granulomata invariably harbor nests of gonococci, which keep up a constant reinfection of the remainder of the urethral mucosa. Incidentally they show a tendency to bleed freely. This can readily be demonstrated through the urethroscope by touching these little growths with a urethroscopic carrier which in itself is sufficient to start up a profuse hemorrhage. Pathology of this type is more frequently observed in female than male urethras.

The other source of urethral hemorrhages just alluded to may be found in the granulations which so often develop behind a stricture. While in most instances these granulations are dry and produce only occasional blood stained discharge, after repeated sounding they are more apt to in-

crease in vascularity, become more spongy, and bleed furiously especially after instrumentation or intercourse. This condition occurs with equal frequency in both sexes.

As to hemorrhages of vesical origin it is safe to state that they are more frequently caused by inflammatory conditions than by neoplasm. Starting with the less frequent solitary ulcers we may mention incrusting cystitis, loss of trigonal epithelium, and the more frequent inflammation of the vesical mucosa overlying a hypertrophied prostate.

The etiology of the so-called solitary ulcer is somewhat obscure. The generally accepted theory is that they are due to chemotactic influences in the same manner as gastric and duodenal ulcers. These ulcers are best observed during an attack if the bladder is flushed out and a cystoscope is quickly introduced with the window pointing toward the vertex, their most common location. One of two phenomena may be seen—either a blood vessel spurting from the bottom of the ulcer or a firmly attached coagulum swaying in the filling fluid.

In women there is occasionally observed a condition which, although described by several authors, has never been closely analyzed as to etiology and pathology. In such cases one sees the whole trigonum in a fluffy condition. The normal sheen of the mucosa is absent and there are no blood vessels to be made out. The whole trigonum appears as though covered with cotton while in between the floating partially detached epithelial rags blood is seen filtering out and dissipating through the filling fluid.

In the course of a colon-cystitis in women one often observes denuded spots covered with phosphatic deposits. It seems that the sharp edges of the phosphate crystals produce a trauma of the mucosa which results in hemorrhages of varying degrees. This connection has often been proven by the hemorrhages ceasing after the eradication of the phosphates through bladder flushings with salicylic acid solutions and the internal administration of acids even though the cystitis proper may be scarcely influenced.

In old men profuse vesical hemorrhages may arise from an inflammation of the mucosa overlying a hypertrophied prostate. Such hemorrhages may be very severe if after a prolonged retention the bladder is emptied by sudden

*Read before the Northwest Branch, January 1, 1915.

catheterization. A cystoscopic examination executed under proper precautions will reveal the source of the bleeding. Such pictures are especially clear and instructive if a retrospective cystoscope is used. The observer will see that the mucosa, owing to its extremely swollen condition, is thrown into folds over the prostatic bulging and at various points blood trickles over these thickened indurated margins.

Varicosities of the bladder mucosa may also lead to hemorrhages in the same way as a bursting varix elsewhere will bleed. It is rather interesting to note that for quite a while the occurrence of varices in the bladder was denied by the foremost urologists, as for instance by Dittel and by Nitze in the early days of his cystoscopic work. Varices in the bladder of pregnant women are less often observed than is generally supposed, as stasis is less likely to take place here than in the dependant parts of the body.

THE TREATMENT OF THE GESTATIONAL VARIETY OF PUERPERAL ECLAMPSIA.*

W. A. NEWMAN DORLAND, A. M., M. D.

Professor of Gynecology, Post-Graduate Medical School; Professor of Obstetrics, Chicago College of Medicine and Surgery.

CHICAGO, ILL.

My object is bringing this very interesting subject before you this evening is to emphasize certain phases of the matter, especially along the line of treatment, which may be either altogether overlooked, or which by many physicians are but vaguely understood. The eclamptic seizure, as we know, appears in the great majority of the cases—or 60 per cent.—during the actual process of parturition. In 20 per cent. the attack does not come on until after the birth of the child; and in the same number of cases, or 20 per cent., the seizure occurs before the woman has fallen into labor. Generally this will be at some time in the last trimester, although DeLee records a case in the tenth week of pregnancy, and fatal cases have been reported in the third, fourth and fifth months. It is with these gestational cases that this paper is especially concerned.

The two clinical types of gestational eclampsia.

—The toxemias of the child-bearing woman are more or less closely correlated, as we are now beginning to appreciate, and are especially concerned with three vital organs, the liver and the kidneys. In some women the tremendous strain to which their entire body-system is subjected during pregnancy manifests itself primarily upon the liver, and these women develop the pernicious vomiting of pregnancy, acute yellow atrophy of the liver, or the hepatic type of eclampsia. In others the kidneys yield first, and in them the kidney of pregnancy and the nephritic type of eclampsia develop. It is obligatory then, as has been shown by Lynch and Webster,¹ to differentiate clinically between these two types of eclampsia, the *nephritic* and the *hepatic*. The former, the renal type, is characterized by the usual urinary signs of renal trouble—albumin in large quantity, casts and urinary suppression with marked edema of the body; while the hepatic type shows great acidosis in association with acetoneuria, diaceturia and high ammonia output, generally without urinary suppression and without edema of the tissues of the body. These hepatic patients are those dangerous cases which show no albuminuria until after the eclamptic seizure, and in which the albumin and casts rapidly disappear after the cure of the convulsions. The urine in the nephritic type, on the other hand, clears very slowly, the albumin persisting for six months or more in most instances. The general impression among physicians is that the kidney of pregnancy is the pre-eclamptic condition; but this view entirely overlooks the other, smaller, but much more dangerous condition of hepatic breakdown. In this connection then, I would emphasize the very vital point, namely, the importance of recognizing in any given case, not so much the presence of albuminuria as the *degree of urinary toxicity*; for the law must stand, that lessened urinary toxicity means increased hemic toxicity, and it is this increasing toxicity of the blood which is the direct cause of the eclamptic seizure.

The relationship existing between the arterial tension and the eclamptic seizure.—This is brought about in the following manner: The ac-

*Read before the Evanston Branch, Chicago Medical Society, on March 22, 1915, and before the North Side Branch on April 9, 1915.

1. Frank W. Lynch and R. W. Webster: Trans. of the Chicago Gyn. Soc. in Surg., Gyn. and Obst., March, 1915.

cumulation of the toxins in the blood due to the lessened nitrogen output produces an irritable condition of the arterioles over the entire body.

These are contracted to such a degree that the heart finds difficulty in forcing the blood through them. There results a steady rise in the arterial tension, and this rise is in direct ratio to the intensity of the hemie poisoning. This is true of the vast majority of the cases, although Lynch² has called attention to the fact that "while eclampsia generally gives warning of its approach by a rise in the blood pressure, the disease may occur without warning of urinary or blood-pressure phenomena." So exceptional is this, however, that it may be discounted in the present study; and the high arterial tension may be regarded, as Haultain³ emphasizes, as having much to do with the actual convulsive seizure. It is usually, though not invariably, associated with an increase of the pulse-rate. According to Evans,⁴ the arterial tension in the pre-eclamptic and eclamptic states varies from 140 to 200 millimeters, and immediately before the convulsion is 170 to 190 millimeters in most cases. He gives the following axiom: "In cases of hepatic and renal insufficiency in pregnancy a rising blood-pressure is indicative of danger, and 160 millimeters of pressure is to be placed as the danger limit."

It may be granted, therefore, that a high arterial tension predicates the early appearance of an eclamptic seizure which may very promptly kill the patient, or which may result in certain accidents that may ultimately have a fatal termination; for some eclamptics die not from the seizure itself, but from various cerebral conditions, such as edema or congestion of the brain or forcible rupture of a cerebral vessel during the attack. Britz⁵ gives the following figures obtained from necropsies conducted upon puerperal eclamptics, in stating the cause of death; edema of the brain, 42 per cent.; congestion of the brain, 30 per cent.; apoplexy, 3 per cent.; unaltered brains, 10 per cent. It becomes evident, therefore, that the primary duty of the accoucheur is to prevent, if possible, the onset of the eclamp-

tic seizure; or, this failing, to control as speedily as possible the convulsion and prevent its recurrence.

Indications for the treatment of gestational eclampsia.—Bearing in mind these vital facts in the etiology and pathology of puerperal eclampsia, what are the practical applications to be made in those cases of the disease which develop during the closing weeks of pregnancy before the labor pains have been instituted? Occurring during parturition, after the control of the spasm by the usual method of chloroform inhalation, a speedy extraction of the child can be accomplished by forceps or version and the eliminative treatment for the toxemia begun. In the gestational cases, however, quite a different problem is presented.

If we accept the belief that the high arterial tension with resultant cerebral irritation is the direct cause of the eclamptic seizure, it stands to reason that the primary and immediate duty of the medical attendant is to eliminate this ominous factor. It is right here that I wish to express myself as utterly opposed to the Stroganoff method of treatment—the use of chloroform, chloral and morphin. It was Loomis of New York, who a quarter of a century ago advocated the use of morphin in large doses, one-half grain hypodermatically, in all cases of uremic coma with or without eclampsia. I have used this treatment, and have watched the respirations fall to eight per minute, and I have had complete recovery follow. But I have also seen the same method promptly followed by severe and repeated eclamptic seizures with fatal results. The secretions of the body are already more or less suppressed; there is commonly a total urinary suppression. What then, is the rationale of administering in large doses a remedy the action of which will still further dry up the body secretions? I must confess it does not seem to me to be a rational form of treatment, even if it is claimed that it is done to alleviate the intensely nervous condition of the patient. There is another and far safer method of achieving this desirable end without running the risk of adding to or prolonging the conditions of more or less total suppression of the body secretions.

Of course, if the circulation of toxins in the blood, a high degree of hemie intoxication, is the basal condition in the eclamptic seizure, it must be admitted that this can be very promptly at-

2. Frank W. Lynch: Surg., Gyn. and Obst., 1913, XVII, 472-479.

3. F. W. N. Haultain: Edinburgh Med. Jour., 1913, n. s., XI, 313-316.

4. D. J. Evans: Month. Cyclop. and Med. Bull., 1912, V, 649.

5. Britz: Zeitsch. f. Geburts, u. Gynak., 1892, Bd. XXIII, 1-52.

tacked and materially lessened by the performance of venesection. In a plethoric individual this can be done with impunity; but what shall be said of this method in that grave and common form of eclampsia with anemia? Here it is absolutely contraindicated; and in any case there is a very general aversion to blood-letting; it may be because of its depressing psychic effect.

THE GREAT VALUE OF VERATRUM VIRIDE IN ECLAMPSIA.

It is my desire to put myself on record as being a hearty advocate of the use of veratrum viride as the initial step in the treatment of these patients, whether they be seen in the pre-eclamptic or post-eclamptic state. This remedy, very popular in the eastern portion of our country, is rapidly gaining ground elsewhere. It has stood the test of experience in the hands of many expert obstetricians in the country; and its most strenuous opponents are those who, when directly asked, admit that they have not given the drug a fair trial, or even have not used it at all. Since Fearn,⁶ in 1871, advocated the use of this drug for this purpose there has been a steadily increasing recognition of the value of the method of treatment. Thus Jewett,⁷ in 1887, recorded 22 cases so treated with 4 deaths; a mortality of 18 per cent. Rushmore⁸ the same year recorded 85 cases with 20 deaths; a mortality of 23½ per cent. Trimble treated 26 cases with veratrum viride with 3 deaths; a mortality of 11.5 per cent.; while 24 cases treated by him by other methods showed 6 deaths; a mortality of 25 per cent. Mangiagalli⁹ reported 18 cases with but one death not due to the eclampsia. More recently, Hirst¹⁰ has used veratrum viride in 200 cases or more with most gratifying results. Kirkley¹¹ states positively that "veratrum viride stands next to venesection as an anti-eclamptic. It diminishes blood-pressure and promotes elimination by the kidneys and skin." Zinke¹² heartily recommends the use of large doses of veratrum viride, in some case combining it

with large doses of chloral per rectum. He deprecates the employment of Stroganoff's treatment in eclampsia. Haultain¹³ is most emphatic in his endorsement of the drug, preferring to use it, however, in the form of veratrone, 1 c.c. in sterilized ampules. He states that its action is not only marked but exceedingly rapid; the pulse is reduced in many instances as low as 50 beats per minute, and he claims that a pulse of 60 or below indicates a tension which is consistent with safety. In this stand he is supported by Beck¹⁴ of South Africa, who also uses the veratrone, and by Wallace.¹⁵ Newell¹⁶ has used the remedy with satisfaction since 1892; and Wiley¹⁷ of Kansas, emphatically endorses its use and deprecates the attitude assumed by certain observers opposed to the method as unwarranted by the published reports.

My personal experience with veratrum viride covers about twenty years. During this time I have used the drug in a large number of eclamptics in private work and in consultation without a failure, and with but one death, which occurred on the seventh day from a right-sided hemiplegia, following an apoplexy which developed during the second convulsion. In other cases in which the drug was not used I have had a number of fatalities. Probably the most startling and brilliant result in my experience was the following:

One week prior to my departure from Philadelphia to take up my work in Chicago, I was called, at 8 o'clock in the morning, from the breakfast table at the Union League, by Dr. J. S. Parker. He asked me to come at once to see with him a young primipara near Darby, Pa. She was but 19 years of age, of large physique and had given birth to her child at noon on Wednesday, the day before I saw her. Six hours later she had had her first convulsions. The fits had recurred throughout the night at half hour intervals, notwithstanding the administration *per os* of the fluid extract of veratrum viride as long as the patient was able to swallow. By morning they had assumed the form of the double eclamptic seizure, one spasm being followed in about a minute by a second, and this by an interval of half an hour, when two more spasms occurred. Dr. Parker informed me he had called in two other physicians who had seen the pa-

6. Fearn: "Veratrum Viride in Large Doses as a Substitute for Blood-Letting in Puerperal Eclampsia," Amer. Jour. of Obst., IV, No. 1, 1871.

7. Jewett: Trans. Amer. Gyn. Soc., 1887.

8. Rushmore: Gaillard's Med. Jour., XLV, No. 5, 1887.

9. Mangiagalli: Ann. di Ost. e Gin., No. 7, 1900.

10. Hirst, B. C.: Textbook of Obstetrics.

11. Kirkley, C. A.: Trans. Amer. Gyn. Soc., 1912, XXXV11, 249-268.

12. Zinke, E.: Amer. Jour. of Obst., 1913, LXV11, 1065-1088.

13. Haultain, F. W. N.: Trans. Edinburgh Obst. Soc., 1912-13, XXXV11, 306-314; Edinburgh Med. Jour., 1913, n. s., XI, 313-316; Brit. Med. Jour., 1914, II, 537.

14. Beck, L. A. W.: South African Med. Jour., Cape-town, 1913, XI, 476.

15. Wallace, A. J.: Lancet, 1912, II, 1574-1576.

16. Newell, F. S.: Trans. Amer. Gyn. Soc., 1912, XXXV11, 1239-1248.

17. Wiley, F. M.: Jour. Kansas Med. Soc., 1913, X111, 333-397.

tient and had given her but two hours to live. He assured me I could not do anything, but wished me to come for the moral support it would give him. The patient was purple, comatose, stertorous. Her pulse was 180; the arterial tension almost 200. It was a desperate case. I assured Dr. Parker that there had been no absorption of the veratrum which had been administered by the mouth; had two minims of croton oil in sweet oil dropped upon the tongue; and at once injected hypodermatically twelve minims of the fluid extract of the veratrum viride. In ten minutes the pulse had fallen to 90 beats. I gave four minims more and the beats fell speedily to 56 per minute, the pulse being full and soft. It remained in this condition for an hour—as long as I stayed with the patient—and there was no recurrence of the convulsions. I advised the hypodermatic injection of two additional minims of the drug at any time should the pulse rise above 60 beats per minute, and left the house. At 3 p. m., by 'phone, I was told that the pulse was just 60, and that there had been no convulsions since I had left. The next morning, at 9 o'clock, consciousness began to return; and on the following morning the patient was practically normal in every respect, with free action of the kidneys.

The action of veratrum viride.—What I would especially ask you to bear in mind is that the veratrum does not eliminate the poison, but by causing a rapid vasomotor paralysis dilates the arterioles throughout the entire body—in the kidneys as well as elsewhere—and immediately arrests the convulsive seizures. This is its primary action. The secondary effect is just as valuable. The dilatation of the small vessels in the kidneys increases the flow of blood through these organs and favors a resumption of the renal action, which has been in abeyance. Generally in a few hours a profuse diuresis occurs. Often within five minutes after the primary dose the patient will become nauseated and vomit, thereby demonstrating the general relaxing effect of the drug. Elimination by the skin, kidneys and gastro-intestinal tract now proceeds rapidly. If there should occur another rise in the arterial tension and pulse-rate the treatment must be repeated, but in proportionately smaller doses, for the tendency to convulsive seizure will often persist until sufficient elimination of the poison has been accomplished to remove this danger. It is well-known that in a certain percentage of eclampsies the convulsions will continue even after delivery of the child, or will not appear until some hours after the labor, as in the case I have recorded in this address. Zinke (l.c.) claims that this is

true in 50 per cent. of the cases; and Peterson,¹⁸ modifying Seitz's figures, showed that in a total of 2,135 cases of eclampsia the convulsions continued after operative delivery in 47.3 per cent. of the women, and 18.4 per cent. of these women died. These figures should not be used as indicative of the failure of operative interference in these cases—and by operative interference I mean the performance of Cesarean section. On the contrary, they merely mean that the poison is still present in the patient's system after the operation; that it will remain there until elimination begins; and that as long as it is in the system the eclamptic status persists; therefore, the indication remains for the repeated use of the veratrum viride until the poison is eliminated. The pulse must be the guide always, both as to its rate and degree of tension.

CESAREAN SECTION IN GESTATIONAL ECLAMPSIA.

Having temporarily controlled the eclamptic status in these gestational cases, the second great indication for treatment is the early removal of the child. In the nephritic cases characterized by tremendous edema and anasarca, with a balloon-like appearance of the labia majora rendering digital exploration almost or altogether impossible, and an absolute urinary suppression—the woman not yet in labor, therefore with a closed cervical canal—in these cases abdominal Cesarean section supplemented with the judicious employment of veratrum viride will give excellent results in a very large percentage of the cases. Probably no one in this country has made a more comprehensive study of this phase of the subject than has Reuben Peterson¹⁹ of Ann Arbor. His conclusions are very voluminous and very suggestive, if not absolutely convincing.

Among other interesting facts he shows that in the five years between 1908 and 1913, when his investigations ended, the maternal mortality of abdominal Cesarean section done for the relief of puerperal eclampsia in the hands of all operators had been reduced from 47.97 per cent. prior to 1908 to 25.79 per cent., and in the hands of the trained and experienced abdominal operator to 18.68 per cent. These figures include the operations done late in the eclamptic state after

18. Peterson, Reuben: Amer. Jour. of Obst., No. 1, 1911.
19. Peterson, Reuben: Amer. Jour. of Obst., LXIX, No. 6, 1914.

five or more convulsions had occurred, as well as those done immediately after the first convulsion. The mortality rate was as low as 13.15 per cent. in the cases which were operated upon early, before profound toxicosis and septic infection had taken place. We are justified in concluding that if the Cesarean section should be done in eclamptics showing a tension of 160 millimeters or over prior to the occurrence of the first convulsion the death rate would fall considerably below this record of 13.15 per cent.

Peterson makes the positive assertion that "the operative treatment of eclampsia has never been given a fair trial. To do this the uterus should be emptied quickly, as soon as possible after the onset of the first convulsion, not emptied after all kinds of medicinal treatment have been tried and failed." He adds, "The increase in mortality due to delay is shown by a mortality of 30.33 per cent. where the operations were performed after the sixth convulsion. This is 10 per cent. higher than after quick delivery and 5 per cent. higher than the total mortality resulting during this same period (1908-1913)." Another statistical record made by him is to the effect that "the maternal mortality in eclampsia after abdominal Cesarean section steadily increases with the age of the patients, it being 23.63 per cent. between the ages of 16 and 20, and 31.11 per cent. between the ages of 31 and 35." Of 248 children delivered by abdominal Cesarean section done for eclampsia from 1908 to 1913 there was a fetal mortality of but 3.62 per cent.—"a much better showing than by any other method of treating eclampsia." As an axiom, Peterson states that "Any obstetric condition which makes delivery by the natural passages prolonged and difficult may be an indication for abdominal Cesarean section in eclampsia."

Recently I have had the opportunity of demonstrating the value of this method of treatment of puerperal eclampsia. Through the courtesy of Dr. A. H. Carter I was privileged to see an eclamptic patient who had had total urinary suppression for over 36 hours. Following the Stroganoff method, Dr. Carter administered a hypodermatic injection of one-quarter grain of morphin, which was promptly followed by three violent eclamptic seizures. When I saw the pa-

tient she was profoundly comatose, with a pulse of 165 of extremely high tension, and with an immense edema of the legs and external genitalia so that it was not possible to make a vaginal examination. Ten minims of fluid extract of veratrum viride were injected hypodermatically, and immediate preparations made for a Cesarean section. In five minutes the patient began to retch and vomit, and the pulse fell to 65 beats by the time she entered the operating room. The section was readily performed and a fetus delivered fairly well asphyxiated but soon reviving. In the afternoon of that day—the operation being performed at eleven o'clock—the patient's pulse and tension again rose, and at six o'clock she had a convulsive seizure of moderate intensity. Another injection of ten minims of the veratrum brought the pulse down to 58; diuresis shortly afterward ensued, and the patient made an uninterrupted recovery.

SUMMARY.

In conclusion, gentlemen, I would summarize this paper as follows:

1. Carefully watch the urine of pregnant women, not so much for the appearance of albuminuria as for a falling degree of toxicity; when this is found note the pulse-rate and degree of rise of the arterial tension.

2. If the tension rises above 165 millimeters of pressure the question of terminating the pregnancy should be seriously considered.

3. At any rate, such a patient should immediately be given a large dose of the fluid extract of veratrum viride, varying the size of the dose according to the circumstances of the case, with the object in view of preventing the onset of an eclamptic seizure.

4. Should the seizure occur before the veratrum has been injected, the appropriate dose should be immediately administered. If labor has not yet started an abdominal Cesarean section will give the best results for both mother and child.

5. The necessary systemic irritation resulting from attempts at the induction of labor *per vias naturales* by accouchement forcé with the performance of version or forceps extraction may in and of itself precipitate an eclamptic seizure.

6. After the performance of the Cesarean section the pulse and arterial tension must be closely

watched; if a dangerous rise in either occurs the injection of veratrum viride in appropriate dose should be made.

CHOANAL FIBROMA.*

NORVAL H. PIERCE, M. D.,
CHICAGO, ILL.

These growths constitute a group which, pathologically and clinically, are rare but interesting. There is some discussion as to their place of origin. Panse, in 1873, was the first to draw attention to these growths, and other accurate observers, among them Zarnieko, believe that they originate somewhere around the rim of the choanae, while Killian believes that they have their origin within the antrum, and gain exit to the post-nasal space through an accessory opening. Kubo, a student of Killian's, made a broad dissection of the antra, in several of these cases, and proved that at least some of them do spring from the antrum and escape through an accessory opening in the post-nasal space. It is probable that they may originate both around the rim of the choanae from the septum, and the posterior end of the middle turbinated body, as well as from the accessory sinuses. They differ altogether in structure from the myxomas or common polypus, inasmuch as they are made up of true connective tissue covered by several layers of epithelium.

Zarnieko makes the point that in one of his cases well defined bone formation was present, which would at once take it out of the class of mucous polypi. They have always one peculiarity in common, namely, the very fine pedicle by which they are attached to their base.

They may grow to a very large size. Stork reported a case that measured nine centimeters long and was ten and one-half centimeters in circumference. Zaufal reported a case which measured eleven centimeters long, six centimeters broad, and three and one-half centimeters thick. The circumference was fourteen centimeters. One of my cases measured six centimeters long from the point of insertion to the end of the growth, and at its largest portion measured three centimeters.

They belong to the type known as soft fibromas.

Diagnosis: The diagnosis has to be made between typical post-nasal fibromas, pseudo-post-nasal polypi, and sarcoma of the post-nasal space. As is well known, the true typical post-nasal fibromas occur most frequently in males, between the ages of eighteen and twenty-five. It is a remarkable incidence that the three cases that I have seen in the last three years occurred in females, one in a Japanese girl of twelve, the other two in young adult females.

The true typical post-nasal fibromas at their commencement have a tendency to bleed excessively, whereas the hemorrhage from the choanal fibromas is negligible.

It has been said that another point in differential diagnosis is that the true post-nasal fibromas have a tendency to form adhesions between the surrounding tissues, while the choanal fibromas do not. In one of my cases I could positively prove the adhesion which had taken place between the body of the tumor and the posterior wall of the post-nasal space.

The point of origin is another very valuable asset in differential diagnosis. It is at times difficult, when the tumor has reached a size that completely fills up the choanae and projects down into the post-nasal space, to ascertain this by posterior palpation. We can, however, by means of the use of Killian's long intranasal speculum or electric pharyngoscope in many cases discover the point of origin, either from an accessory opening or from the rim of the choanae.

Treatment: On account of the delicate pedicle by which these tumors are attached at their base, their removal is very easy. Lange's hook is of especial use in the removal of these tumors. By means of this hook, which is inserted into the anterior naris and made to engage the pedicle, the tumor can be severed from its base very easily. It is then either caught in forceps and dragged through the nose and delivered anteriorly, or allowed to drop into the post-nasal space. The snare may also be used, inserted through the anterior naris, while a finger in the post-nasal space directs the snare over the body of the growth. If it is not too large, traction is made and the tumor is delivered through the anterior naris. I have also removed one of these tumors by means of a large-sized adenoid

*Read before the Chicago Laryngological and Otological Society, December 22, 1914.

forcep, the tumor being delivered through the post-nasal space.

The prognosis as to recurrence is very good. In the three cases I have had, one has not recurred after three years, one after eight months, and the other after three months.

The remarkable fact is that these tumors are so frequently mistaken for true post-nasal fibromas by specialists of good repute. The differential diagnosis is easy, if we call to our aid the few points that I have already named. The mistake that is made is depending on palpation for diagnosis. These tumors may be quite fixed in position and appear quite hard to the touch—quite as hard as a true post-nasal fibroma at its beginning, but with our probe we can ascertain that they do not spring from the basilar cartilage, and by means of the intranasal speculum or endoscope we can most frequently discover their point of origin in the choana.

22 EAST WASHINGTON STREET.

DISCUSSION.

Dr. George W. Boot wished to show three specimens in connection with Dr. Pierce's paper, the first of which he thought would fall in Dr. Pierce's classification. It was removed from the left nostril of a man, about thirty-eight years of age. The growth could be seen in the naso-pharynx. It involved some of the anterior ethmoidal cells, and came from the maxillary sinus. It was removed by evulsion and taken out through the nose. Sections showed it to be a fibrous polyp.

The second specimen was that of a post-nasal tumor, which, when removed, the speaker thought was a fibroma, but on cutting the sections it proved to be a fibro-chondro-osteoma. It was attached to the base of the cranium, and the speaker experienced great difficulty in getting it out. No. 8 wire in the snare failed to make any impression. Finally, he cut it loose from the base of the skull with the forceps, and finished the dissection with Killian's bent knife.

The third specimen was one which was removed from a child, three and one-half years old. The growth could be seen through the mouth, and the speaker thought it was a case of adenoids. After removal, section showed it to be a sarcoma. The child had a very prompt recurrence, was taken from the hospital, and died.

Dr. Otto J. Stein has always been under the impression that choanal fibromas had one attachment, as stated by the essayist. He had a case some years ago that he operated on and at that time thought there were two attachments. He presented the specimen—a large one—about two and a half or three inches long—to the Society, but in discussion (at St. Louis) the members finally convinced him that one of the

attachments was nothing but an adhesion that had taken place. Dr. Pierce said that one of his cases had an adhesion, but he also stated that he had one that had no adhesion, and asked Dr. Pierce if that was not what he had said.

Dr. Pierce replied that the case referred to had one adhesion. It is said that these tumors do not form adhesions, as a rule.

Dr. Stein, therefore, still had some hope that his case did have two attachments instead of one, as the members had convinced him at that time.

BLOOD PRESSURE IN LIFE INSURANCE.*

J. W. FISHER, M. D.,

MILWAUKEE, WISCONSIN.

Medical Director, Northwestern Mutual Life Insurance Company.

The Northwestern Mutual Life Insurance Company, in the year 1906, in order to test the diagnostic value of the sphygmomanometer in examinations for life insurance, made use of the instrument in its examination of applicants for insurance at its home office. The results were such that in August, 1907, it was deemed advisable to require its use by our examiners in the field who possessed an instrument or could be induced to secure one. The result was that in a number of the larger cities we were enabled to secure its use in examinations for the company. By the first of the year 1912 90 per cent of the examiners of the company were using the instrument in their examination of applicants for insurance. At the present time there are very few examiners of the company who do not possess an instrument.

Prior to 1907 little or no use was made of this valuable instrument, except in clinical cases. Four years ago the writer, in a paper delivered before the Medical Directors Association, stated "No practitioner of medicine should be without a sphygmomanometer. He has in this instrument a most valuable aid in diagnosis. The sphygmomanometer is indispensable in life insurance examinations and the time is not far distant when all progressive life insurance companies will require its use in all examinations of applicants for life insurance." Today this prediction is practically fulfilled, and no up-to-date practitioner is without this very valuable aid in diagnosis, much of which has been due to the requirements of life insurance companies in insisting on their examiners using the sphygmomanometer in

*Read before the Chicago Medical Society, March 31, 1915.

examinations for life insurance. Hundreds of letters have been received by the writer, thanking him for insisting upon its use in examinations for the company and testifying to its very great value in private practice.

The use of the sphygmomanometer demonstrates in many cases that a supposedly normal person may have an abnormally high blood pressure and present no symptoms or pathological changes discoverable by any of our present methods of diagnosis, thereby suggesting a careful study of the case before any symptoms of disease are discoverable, thus rendering the sphygmomanometer a valuable and indispensable aid in diagnosis. Clinicians for some time considered a blood pressure of 180 mm. Hg. as of little significance; now a pressure of 160 mm. Hg. is regarded as one that calls for further study of the case, while the statistics presented herewith show that a blood pressure of 150 mm. Hg. gives a higher mortality than an average risk accepted by conservative life insurance companies, and this covering a period of only a comparatively few years. I am firmly of the opinion that a persistent blood pressure of 15 mm. Hg. above the average for the age as shown in the table presented herewith should at least excite suspicion and call for further careful and painstaking investigation.

The company accepted 525 risks during the years August, 1907, to August, 1910, both inclusive, with an average blood pressure of 152 mm. Hg., at ages 40 to 60, and the mortality computed to the 15th inst. was 32 per cent in excess of the general average mortality of the company covering a like period. We have rejected 910 applicants, ages 40 to 60, who had a high blood pressure and one or more other impairments than the high blood pressure, average pressure 167 mm. Hg., which show a mortality two and a half times greater than the general average mortality of the company. 1,197 were declined, ages 40 to 60, both inclusive, on account of high blood pressure alone, with an average pressure of 161 mm. Hg. No other impairment was shown on the application at the time of its receipt at the home office, and the mortality to date is double the average mortality of the company covering the same period.

467 applicants rejected were under age 40, with an average blood pressure of 149.50 mm. Hg., and show a mortality of 30 per cent in excess

of the general average mortality of the company. The latter covers an average period of exposure of only one and a half years.

The impairments recorded on 888 cases declined with a high blood pressure and one or more other impairments, from August, 1907, to August, 1913, show the following impairments:

Arterio-sclerosis Atheroma	Heart Murmur	Heart Hypertrophy	Albumin and Sugar	Albumin in Urine	Sugar in Urine	Albumin and Casts	Cast in Urine	Nervous Symptoms	Prostatic Disease	Miscellaneous	Total
109	216	53	15	259	37	21	12	30	16	120	883

Of the 1,197 applicants in which there were no other impairments at the time of the examination, 397 have been kept under observation and identically the same impairments have developed or have been subsequently discovered, as are shown in the 888 applicants in which there were one or more impairments in addition to the high blood pressure shown in the table of other impairments above, and the mortality of the 397 cases has been practically the same as in the 888 cases recorded with a high blood pressure and one or more other impairments.

It will be observed that the average time of exposure of all of the declined cases has been less than four years. The cases declined in 1907 showed a mortality of 406.62 per cent in 1913, six years' exposure. Those declined in 1908 show a mortality of 238 per cent, five years' exposure. Those declined in 1909 show a mortality of 209 per cent, four years' exposure. As would be expected, the longer the exposure the greater the mortality. The causes of death are given below:

525 Accepted Risks		137 Rejected Risks
1	Anemia, Pernicious	1
	Aneurism, Aorta	1
2	Angina Pectoris	3
5	Apoplexy	28
2	Appendicitis	2
3	Arteriosclerosis	13
2	Cancer	6
1	Cerebrospinal Meningitis	
	Cirrhosis of Liver	2
	Consumption	1
	Diabetes	2
3	Duodenal Ulcer	
3	Gall Stones	2
5	Heart Disease (Organic)	29
1	La Grippe	
	Locomotor Ataxia	1
7	Nephritis	34
	Paralysis	3
	Peritonitis	2
3	Pneumonia	3
1	Prostatic Hypertrophy	
1	Pyelitis	
1	Railway Accident	
2	Rheumatism (Acute)	
	Stokes-Adams Disease	1
2	Suicide	3
1	Miscellaneous	1

Average blood pressure of those who died accepted risks was 153.46 mm. Hg. Average blood pressure of those who died rejected risks was 172.26 mm. Hg.

The following table shows the average blood pressure for the different ages on over 50,000 applicants accepted for life insurance, and is a combination of the experience of this with two other insurance companies:

Average Systolic Blood Pressure, Accepted Risks, at Ages 15-60.

Ages	Average Pressure
15-20.....	120.47
21-25.....	121.99
26-30.....	123.14
31-35.....	123.83
36-40.....	126.51
41-45.....	127.62
46-50.....	129.41
51-55.....	131.45
56-60.....	134.07

We have received but little diagnostic value in our work thus far from the low blood pressure, and the same may be said of the diastolic pressure. In our examinations at the home office we require both the diastolic and systolic pressure recorded on the blank and require the same, also, from all cities of 100,000 or over. As to what diagnostic or prognostic value may be attached to the diastolic pressure in examinations for life insurance will be revealed when our data is tabulated.

The mortality on the rejected risks, as shown in the foregoing, is undoubtedly much lower than the exact figures would show were it possible to secure a record of all deaths. Where the risk is not insured in this or other companies, we must depend upon the solicitor or medical examiner to notify us of the death of those risks rejected with a high blood pressure.

A high blood pressure is found in about 6½ per cent of all applicants declined for insurance by the company.

(Discussion of this paper appears in the proceedings of the Chicago Medical Society, published in this issue.)

UTERINE INERTIA AND ITS MANAGEMENT.

IRVING H. EDDY, M. D.,

Instructor Gynecology, College of Medicine, University of Illinois.

CHICAGO.

It may seem somewhat presumptuous to direct the attention of the profession to so familiar a subject as uterine inertia or exhaustion, yet it is one of vital importance, not fully appreciated by many, and anything that can be added to this important topic either in this writing or through any discussion that may result therefrom that

will be of benefit in relieving the suffering of the mothers we are called upon to care for, is worthy of our consideration.

It should be the bounden duty of everyone doing obstetric work, as in other specialties, to avail himself of every means within the powers of the profession to assist his patient, and to bring about as easy and short a labor as possible, consistent with good judgment.

The frequency of uterine exhaustion or inertia is known by everyone that does extensive obstetric practice, or is observant in his work, and may be seen at any time during labor from the beginning until the time is reached when one firm contraction would effect a natural delivery and render the mother free from further suffering.

Though the causes of uterine inertia are fairly well understood, it seems to me worth while to repeat them at this time, before taking up diagnosis and treatment, the most important portion of this contribution. Undoubtedly, the most frequent cause in the early stage of labor, which annoys the patient as well as her physician, is fatigue in overcoming a rigid cervix; especially is this true in some elderly primiparae. Uterine inertia may be the result of faulty development of the uterine musculature as infantile uterus, which perhaps has required surgical procedures before pregnancy has taken place.

The presence of fibroids, endometritis of the interstitial type in which a large quantity of connective tissue has developed, are most potent factors in the production of uterine inertia.

Atony, or paralysis of the uterine muscle, frequently results from hydramnios, twin or rapidly repeated pregnancies. Faulty development of the nerve supply, or emotional inhibitory nerve impulses may interfere with proper contractions. In extremely nervous patients it is rather a common occurrence to observe a cessation of uterine contractions and failure to return, when the attending obstetrician approaches the lying-in room. I have observed with many of these patients after a considerable period of uterine delay that a suggestion regarding the use of forceps would have the desired result, and a return of uterine contractions would take place.

A uterus that is capable of delivering itself under normal circumstances may, as a result of

premature rupture of the membranes, become exhausted before delivery has been completed.

Obstruction to labor from an unusually large head, abnormal position, contracted pelvis or the presence of a placenta previa preventing the head from reaching the cervix, may result in exhaustion.

Pendulous abdomen may be an important factor in multiparae, the direction of the force being spent in an ineffective manner. An overdistended bladder is a frequent cause of uterine inertia. I recently saw a case in consultation in which the patient had been in labor during the whole night without any appreciable progress. On examination I found the bladder distended almost to the umbilicus and after catheterization effective contractions occurred immediately and effected a natural delivery.

We may sum up the etiology then by saying that any pathological condition that enfeebles uterine contraction, that interferes with the normal passage of the child, or that causes the forces to be spent in an ineffective direction, are the potent factors of this condition.

Diagnosis.—Before making a diagnosis of primary uterine inertia, one must absolutely satisfy himself that no mechanical obstruction is present, that no unusual disproportion between the child's head and pelvis exists and that an abnormal presentation or position is absent.

Measurements of the pelvis should be taken carefully. While the diagonal conjugate is our most reliable measurement the external measurements aid materially in ruling out a deformed pelvis. The general contour of the pelvis should be observed and any undue prominence of the spines or promontory of the sacrum determined while taking the conjugate.

While we have no satisfactory means of determining the relative size of the fetal head to the pelvis, some accuracy may be elicited by forcibly crowding the child's head down in the true pelvis.

The prerequisite of successful obstetrics in inertia, as in other pathological conditions, depends on an accurate diagnosis as to presentation and position. In uterine inertia, the contractions are of short duration, cause the patient little discomfort and on palpation the uterus does not

possess the firmness usually felt at the fundus during a normal contraction.

Active treatment in the majority of cases is not demanded if the delay is *primarily* the result of infrequent or ineffective contractions. If on examination one finds the lower uterine segment without the slightest relaxation and the presenting part of the fetus not exerting any appreciable pressure, morphin or chloral should be given. After this gives the patient a needed rest, one will find a relaxation of the cervix will have taken place and active contractions resumed.

When the delay is due, however, to a secondary inertia following a long active period of contraction, with dilatation more or less complete, and the head deeply engaged, we are obliged to effect a delivery in a reasonable time, the condition of the babe and mother alike receiving our attention.

Many drugs and methods have been exploited from time to time for the relief of this condition. Among the older ones mentioned we have quinine, strychnine and atropin.

Dr. Robert Bell of the Glasgow Hospital, recommended strychnine be given, 1/60 gr. three times a day two or three weeks before labor, and claimed for it excellent results in toning up the uterine muscle, thereby increasing the efficiency of uterine contraction at the time of labor.

Cowan, *Medical Age*, Detroit, 1895, page 1459, reports 12 cases in which he used glycerine suppositories with excellent results.

Kristeller brought prominently into view one of the modern oxytocics under the name of "Expressio fetus," by which is meant manual pressure applied directly to the fundus of the uterus to increase the efficiency of the full or feeble contraction.

As a bit of obstetric history, I might mention our predecessors; among them Churchill recommended blood letting as a means to stimulate uterine contraction.

In investigating the literature upon pituitary extract, I have been able to find the following reports:

Aaron, in September, 1910, before the fifth International Congress, reported 70 cases, including postpartum hemorrhage, intestinal and vesicle paresis, treated with pituitary extract with extremely gratifying results.

Hofbauer advises intramuscular injection, reporting 66 cases, the dose varying from 0.5 to 3 grams. No

toxic effect was noted and the best results obtained during the second stage.

Fries believes it to be a reliable remedy which yields good results in simple inertia.

Humpstone, *American Journal of Obstetrics*, 1912, 2-66-357, reports 64 cases with the following deductions: He believes it to be a potent agent in causing uterine contraction—however, occasionally observing a failure without any appreciable cause.

His observations seem to be in accord with others relative to the most favorable time of administration, namely: after the cervix has become effaced with deficient contraction, the pains immediately becoming stronger, more regular and of longer duration, the chief indications being summed up as follows:

Uterine inertia, post-partum hemorrhage, Caesarean section and in the prevention and treatment of shock; obtaining the best results by giving .4 gram hypodermically, repeating every 20 minutes for 3 doses. The blood pressure observations varied from 8 to 20 points.

Madill and Allen of the Rotunda Hospital, *Surg., Gyn. and Obst.*, Vol. 19, page 241, reports the results of 147 cases under the following heads:

Effect upon the uterus.

Effect upon the fetus.

Indications and contra-indications.

Its use in placenta previa.

Quoting Bell: Pituitary extract causes powerful contractions of the pregnant, puerperal and menstruating uterus. The contractions resulting from the drug retain their physiological character, rhythmical and intermittent. The interval from the time of injection till the onset of contractions varied from two to six minutes and if the delivery was not effected the action of the drug was on an average of fifty minutes. The placenta in all but four cases was delivered spontaneously, these requiring manual removal. I have had one case of adherent placenta following its use. The average time for expulsion of the placenta was eighteen minutes for primipara and eleven minutes for multiparae. In their series 4 primiparae and 9 multiparae were given injection in the first stage for primary inertia, the primiparae being one-half to three-fourths dilated and followed by birth in two hours, and the multiparae one-fourth dilated and was followed by delivery on an average of forty minutes. Its effect is not interfered with by anesthesia. If spontaneous labor does not occur the dilatation of the cervix renders forceps operation less difficult.

Effect on the Fetus: Slowing of the fetal heart beats were noted in some cases. Except in a few cases the child was born in good condition, one being a multiparae, the child being born in white asphyxia; this, however, was a premature twin of thirty-five weeks; nine occurred in primiparae, five being born dead, four in white asphyxia, two recovering, leaving a fetal mortality of seven cases. Two

of these had the cord tight around the neck, one a difficult breech with a contracted pelvis of 9 cc. There still remain 4 fetal deaths unaccounted for, except as a possible result of the injection.

Case 1. Pulse 140 strong, 8 minutes later 100, followed rapid forceps with loss of child.

Case 2. 128—5 minutes before delivery—born dead.

Case 3. Was born in 30 minutes after two injections.

Case 4. Was terminated by forceps.

During the same period of time 106 cases were delivered with forceps with a mortality of 15 cases.

Indications and contra-indications:

Induction of labor for a dead fetus of seven months was successful with an injection of 2 cc.

Hirsch reports 4 successful cases.

Stern reports 3 successful cases of the induction of premature labor—one, however, with the assistance of the Champetier De Ribes bag.

In 120 cases treated by Madill and Allen for secondary inertia 87 were primiparae and 33 multiparae. The average duration before the injection was 19 and 7 hours respectively, the time elapsing from injection to delivery was 22 minutes for primiparae and eleven minutes for multiparae. It was administered in 3 cases of minor contracted pelvis referred to above with fatal results in all—one, however, being a difficult breech. One other indication recommended by them is its administration to multiparae with a history of previous post-partum hemorrhage, its good effect being the raising of blood pressure and avoiding shock.

Trapl in a report of 177 cases states that carditis and nephritis are not contra-indications.

Slowing of the fetal heart or threatened rupture of the uterus are definite contra-indications.

Hofbauer is a strong advocate of its use in cases of lateral placental previa, the only other indication being rupture of the membranes.

Trapl reports 16 cases, 15 lateral and one central, with 3 fetal deaths.

Madill and Allen, 5 cases, 4 lateral and one marginal, two of the five children were born dead, making a total fetal mortality under 20 per cent.

I have used it in one marginal case in conjunction with the Champetier De Ribes bag and internal version with gratifying results.

As in all new remedies, we find many ardent supporters as well as some who report unfavorable results. My own experience with pituitrin has been extremely satisfactory and I believe it to be unquestionably the best oxytocic we have at the present time, and, in non-obstructive cases administered in 1 cc. ampoules hypodermically during the second stage, one may fully expect gratifying results and many cases escape a forceps delivery and the increased danger of sepsis associated therewith.

In conclusion, I make the following deductions:

1. In cases in which the lower segment is not relaxed and only slightly appreciable pressure exerted by the presenting part chloral and morphin are indicated.

2. Pituitary extract undoubtedly increases the efficiency of uterine contractions.

3. Contractions resulting from pituitrin retain their physiological action and effect.

4. Pituitrin is indicated in all non-obstructive cases delayed from uterine inertia.

5. The best results are obtained during the second stage of labor.

6. The best results are obtained by subcutaneous injection of 1 cc. ampoules, but an appreciable effect is obtained by mouth.

7. It is of great value in the treatment of shock from hemorrhage.

8. It is of value in placenta previa combined with recognized methods of treatment.

9. It prevents the use of forceps in a large percentage of cases.

10. The dangers to the fetus are not greater than that of forceps.

11. No untoward effect is noticed on the mother and the danger of sepsis is greatly decreased.

12. Blood pressure observations should be made and pituitrin used with caution in high pressure, especially if considerable sclerosis is present.

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PSYCHOTHERAPY IN GENERAL PRACTICE.

WILLIAM S. SADLER, M. D.

CHICAGO, ILL.

Professor Physiologic Therapeutics, The Post-Graduate Medical School of Chicago; Direction of The Chicago Institute of Physiologic Therapeutics.

In analyzing the histories and other data accumulated in the management of five hundred cases of the neuroses during the first seven years operation of the Chicago Institute of Physiologic Therapeutics we have been strongly impressed at every turn with the fact that the average general practitioner does not pay sufficient attention to either the diagnosis or the treatment of this great and growing group of digestive, circulatory, and nervous functional disorders.

The time allotted to this paper, while not permitting of an exhaustive or critical analysis of the data just referred to, does afford opportunity for briefly pointing out certain phases of the management and treatment of these neurotic patients from the standpoint of the general practitioner.

In this connection, attention should be called to the fact that the writer makes no pretensions of being a psychotherapist, our time being largely devoted to other professional pursuits; but we have been forced to give some attention to psychotherapy in an effort properly to care for those "nerve" cases which we have found on our hands from time to time, and which, as the years passed, came to represent almost 20 per cent. of the total number of patients referred by the profession for treatment at the Institute. Our view point, therefore, in these matters will be that of the general practitioner, rather than that of the neurologist, or the professional psychotherapist.

I am thoroughly convinced that the general practitioner must come to take more of a detailed interest in his "nerve" cases. Probably the best place to begin this agitation would be in the medical schools, many of which now give very much better courses in psychiatry—in the scientific management of the insane—than they do in psychotherapy, i. e., in the management of the functional nervous disturbances or neuroses.

Of course, the general practitioner is not going to undertake to do the work of the specially trained and experienced neurologist, but, on the other hand, if the general practitioner does not

take a greater interest in these neurotic patients, they are going to continue to be duped and deluded by the soothsayers, the palmists, spiritualistic mediums, Christian scientists, Dowieites, and other cults and creeds of the so-called occult sciences and modern mental healing. There are no less than ten million people in this country who do not depend upon the regular medical profession in times of sickness.

If all the neurologists in Chicago should devote their entire time to this class of cases, they could scarcely take care of one patient in a hundred of those neurotic sufferers who are in need of psychotherapeutic treatment—in need of sound psychologic teaching and sane medical guidance.

Christian science and kindred cults are bound to practice and prosper until the general practitioner takes his neurotic patients seriously enough to sit down by the hour and give them the required mental help and moral assistance, not neglecting any minor medicinal or physical therapy which may be indicated. The church and the clergy are devoted to getting people into the kingdom of heaven. The hospitals and the doctor are trying to win people for the kingdom of health; but the average normal person seems to be more interested in the kingdom of happiness, a realm largely neglected by both the clerical and medical professions, but assiduously and successfully cultivated by the mind cure cults and divine healing humbugs of the present day.

In taking up the task of standardizing the physiologic treatment and facilitating the psychic therapeutics, I have found it most convenient and satisfactory to classify these neuroses under seven heads, as follows:

1. Chronic fear—or worry.
2. Neurasthenoidia—or near neurasthenia.
3. Neurasthenia—or nervous exhaustion.
4. Psychasthenia—or true brain fag.
5. Hysteria—minor and major.
6. Hypochondria—or the chronic blues.
7. Simple melancholia.

Under the head of borderland cases may be grouped chorea, some of the ties, ataxias, tremors, hallucinations, dipsomania, persistent insomnia, migraine, pseudoepilepsy and other manifestations of nervous defectiveness.

In the management of this series of neuroses, we desire at this time to call attention to the following general observations:

1. The hereditary nature of these complaints—over 90 per cent. of these cases show a distinctly tainted ancestry in their history. This hereditary taint runs all the way up from worry and temperamental peculiarities to epilepsy and insanity, with a fair amount of alcoholism and syphilis.

2. Chronic fear of some sort is the fundamental mental state which is characteristic of the vast majority of these patients. Faith is the mental medicine which is essential to their cure. Faith in a patent medicine, a new cult, a quack doctor, or a quack preacher, in a new system of fake medicine or a new religion—they all work equally well—as far as the purely psychic phases of these disorders are concerned. Faith is the only one thing essential. The one great requirement is that the patient's faith shall be wholehearted and sincere. Religious faith is usually far more powerful and immediately effective.

3. Among the more common factors of worry and nervousness, to which the physician must give attention, may be mentioned: supposed inherited fears and prenatal markings, definite dreads, hoodoos, muscular tension, mental and motor obsessions, such as counting one's steps, etc., not to mention numerous health fads and practices. We must also discover and eliminate their special phobias, whether it be fear of the dark, great heights, open spaces, elevators, crowded street cars, or microbes; while serious attention must be paid to their premonitions and even their dreams.

4. A careful analysis of these five hundred histories does not show "Americanitis" or our high pressure living, to be such a large factor in their causation as one might naturally suspect. While overwork is an occasional factor of prominence, on careful analysis, it usually proves to have been a case of overworry, quite often associated with over-eating or over-drinking, and so, while education and environment are parts of the causation of these nervous disorders, hereditary predisposition proves to be the real base of our "neurotic triangle."

5. Regarding blood pressure findings, I may only note the following observations at this time:

In the vast majority of chronic worriers and victims of hypochondria, the blood pressure was found to range from normal up to an increase as high as 20 and in rare cases—30 per cent. Seven-

ty-five per cent. of this series had blood pressure elevated from 10 to 25 per cent. above the average for their age. It is characteristic of these cases that the diastolic pressure is not elevated in proportion to the systolic. Those not having an elevated pressure seem to fall into a group who were affected by a more or less profound toxemia (chronic constipation), but whose urine did not show a marked increase in acidity above the normal average. In many of these cases the acidity ran far below normal—even on repeated tests.

In neurasthenoidia—ennui, or near-neurasthenia, the blood pressure findings are practically normal. It was this fact that first suggested the thought of some special designation for this particular class of neurotic patients. I repeatedly found cases who exhibited all the clinical symptoms of neurasthenia, but whose blood pressure remained practically normal, while there could be discovered no explanation for its failure to descend to the usual neurasthenic level.

In full fledged neurasthenia the blood pressure is almost universally below normal—unless there exists some complicating physical condition which serves to explain its failure to go down, such as arteriosclerosis, the habitual use of pressure raising drugs, etc.

Our group of hysterical patients has not been large enough to enable us to arrive at a satisfactory conclusion as to the real interpretation of the blood pressure findings, which are exceedingly variable.

6. Regarding errors in diagnosis, it is surprising how many patients have been diagnosed for months, or even years, as neurasthenic, and who, on careful examination, are found to be suffering from some organic lesion or other complication of disorders more or less physical. It seems still the habit of a few careless practitioners to regard all "achy" feelings as rheumatism, and all "tired" feelings as neurasthenia. The frequency with which these more serious complications were overlooked in this series of cases, and in their order of omission, is as follows:

1. Chronic worry. It is a great mistake to diagnose all over-anxious and over-conscientious people as neurasthenic. It tags them for life and interferes with their ultimate recovery.

2. Long standing chronic interstitial nephritis diagnosed as neurasthenia.
3. Neurasthenia in the aged—when in reality it proved to be a rapidly developing arteriosclerosis.
4. Diabetes—early cases mistakenly diagnosed neurasthenia.
5. Neurasthenia confounded with dementia praecox.
6. Neurasthenia confused with a true melancholia or other early forms of insanity.
7. The causes of the various neurasthenic states, as shown in the summary of this series, in the order of their frequency and importance, are:
 1. Heredity.
 2. Abnormal mental habits and defective will training.
 3. Occupational factors—living and working conditions.
 4. Bad physical habits and unhygienic practices.
 5. Associated physical diseases or other functional complications.
 6. Chronic poisoning—derangements of metabolism, disease toxins, and drug poisons, such as alcohol, tobacco, tea, coffee, etc.
 7. Sociologic influences, prejudices, worries, etc.
 8. City life and modern high tension.
8. The cardinal symptoms which underlie the whole fabric of the unending clinical manifestations of these neurasthenic states, are:
 1. Exaggerated suggestibility.
 2. Over-sensitiveness.
 3. Abnormal impressibility.
 4. Increased emotionalism.
 5. Chronic fear coupled with inveterate procrastination. The fears of primitive man united with the high mental concentration of the civilized man.
9. The explanation of the sufferings and pains of these neurotic patients may be summed up under two heads, as follows:
 1. Over-sensitive nerves and abnormally responsive pain centers on the physical side, often accompanied by the irritating influence of a highly acid state of the circulatory fluids of the body.
 2. A markedly abnormal lowering of the threshold of the attention for pain on

the mental side. In this way, the neurotic patient turns his normal sensations into pain, just as a devoted Christian Scientist is often able to turn many of his petty pains into ordinary sensations. The hypochondriac is a patient who makes a business of being sick when he is well; while the Christian Scientist is one who makes a business of being well—even when he is really sick.

10. And now as to the remedy. What can we, the general practitioner, the internist, the surgeon, and even the specialist, contribute to the task of helping this great and growing army of nervous sufferers? In the first place, we can seek to do real preventive work by more carefully and generally teaching our patients and the public the essentials of mental hygiene, especially the early training and conservation of the child's mental habits and nervous system.

We can begin in a sane and scientific way to take an interest in and to assist in rightly directing the modern eugenic movement as concerns both education and legislation. We can also strongly press the need of adequate school inspection, and while not neglecting adenoids and other things equally important, at the same time, pay more attention to the nervous status of school children.

The family physician should certainly pay more attention to the important work of instructing parents in proper and successful methods which may be early employed in combating the first appearance in the child of hereditary nervous tendencies. Emphasize to the parent the importance of teaching the neurotic child early and thoroughgoing self-control.

As physicians, we can do much prophylactic work with our nervously inclined patients by teaching them how to exalt their will power and to acquire that effective but little cultivated mental power of definite decision. Suggestion and faith are valuable remedies, but *decision* is the scientific basis of permanent cure.

We can still further contribute to the emancipation of our fellow men from the tyranny of fear and the slavery of nerves by a more general education of the public as to the real nature of the neuroses and the proper methods of treating these widespread functional disorders.

11. We next come to the various methods of treatment—the “nerve” cures, and while it will not be possible at this time to undertake to elaborate upon any one of these, I desire to call attention to those procedures and methods of treatment which I have found to be most successful and which lend themselves most readily to the time, opportunities, and previous training of the general practitioner. I may further say that the average practitioner can begin the immediate management of his “nerve” cases with the hope of achieving more or less success, by the help which may be gained from the constantly increasing literature on the subject.

A physician, however little experience he may have had in psychotherapy, is certainly better prepared to undertake the treatment of these cases than is the average of the men and women who, without any medical training whatever, are able to achieve more or less success in their practice as mental healers in connection with the various mind-cure cults of the day.

Outside of the proper employment as auxiliary and physical means of grace to the mind, of various phases of physiologic therapeutics, such as hydrotherapy, thermotherapy, massage, vibration, mechanotherapy, electricity and phototherapy, the management of these nervous cases may be summed up under a number of heads, the particular type of cure to be employed depending upon the circumstances of the patient and the nature of the neurosis. And in this connection let me voice the warning that too much dependence must not be placed upon medicinal and physical remedies. They are all valuable helps, but real cure in the end, as far as it is possible to effect a cure in any given case, will be found to rest with the proper psychotherapeutic procedures.

12. Psychotherapeutic methods adapted to private practice.

The management of functional nervous disorders ranging from worry and fear up to hysteria and hypochondria may be for convenience and therapeutic facility grouped as follows:

1. Elimination of fear.

This may be accomplished by the complicated psychoanalytic methods of Freud, or by the simple educational process following a common sense analysis of the patient's mental attitude. This matter is not in the average case anything like so complicated as some of the newer schools of

thought would lead us to believe, and in this connection, may I say that the most careful scrutiny of the last half (250 cases) of the series herein discussed, shows a sexual morbidity of only 50 per cent, i. e., there was no discoverable sex sliver in the patient's mind in 50 per cent of the cases. I am becoming more and more convinced that the ability of some psychotherapists to trace all neuroses to the sexual basis is due more than anything else to the adroit suggestions which they themselves plant in the minds of the patient.

2. The re-education of the will.

This is accomplished by direct conversational teaching. Plain straightforward psychological instruction.

3. The art of suggestion.

The general practitioner who undertakes to treat his nervous patients will probably not be so expert and experienced as to be able always to utilize the ideal methods of Prince and Dubois. Sometimes we find it best temporarily to use suggestion, but let the suggestion be true and along a constructive and educational order. It is bungling psychotherapeutics to resort to falsehood and suggestions which are intrinsically untrue.

4. The development of decision.

The nervous patient must be taught decision-development—be taught how to render a mental judgment, and then to "stand pat." For this purpose I have often employed checker playing with only sixty seconds allowed for a move.

5. Recreation and relaxation.

Neurasthenics must return to play. Their physical exertions must be of those kinds which exert the body but do not tax the nerves—those nerve activities which are racial old and to which the nervous system has long been accustomed. Proper alternating periods of rest and play and of work and play must be arranged and adapted for each patient.

6. The study and writing cure.

In psychasthenia I usually have the patients keep a diary, and I go over this from week to week in advance of his or her visits. It serves as a means of emotional elimination, and I have found it very helpful. Many of these patients are wonderfully helped by being set at the systematic study of poetry, science or bookkeeping, provided it is properly supervised, and they are not allowed to overdo.

7. The work and occupation cure.

Outside of the early employment of the rest cure in some cases of hysteria and profound nervous exhaustion I look upon the work cure as our greatest help in dealing with those cases. In fact, I don't think we are going to help these patients much unless we can get them interested in both a good job and a good fad.

8. The social service cure.

Good samaritan work is a fine thing for nerves. Get your well-to-do neurotics to take an interest in the other half. It is the greatest method I know of in assisting them to get their minds off themselves. Society today is languishing for the need of that very sympathy and attention which neurotic patients are so disastrously expending upon themselves.

9. Last, but not least, the Faith and Prayer cure.

Prayer is one of the master mind cures, and Faith is the keystone of every successful psychotherapeutic procedure. While we all have our own personal religious opinions and predilections, it has been my observation that faith based on common sense and science is the only cure for fear, and that religious faith is the most immediately effective form for the average human being; and it has been my further observation that it matters little whether it be faith in truth or error, in science or nonsense, as far as immediate results are concerned.

The one thing essential is that the patient's faith should be sincere and profound, and, therefore, Mohammedanism, Judaism, or Christianity, protestantism or catholicism, are all equally effective in working apparent miracles in the cure of imaginary, nervous, and hysterical disorders. And it is herein that the quack preacher has a great advantage over even the quack doctor, in that his so-called divine healing power actually dignifies the imaginary disease, thus enabling the patient to return home to her husband and children with a valid excuse for her years of semi-invalidism; whereas, in the medical management of these cases, time is usually required to give the patient an excuse for getting well and thus to save her face before the loved ones at home, as the average neurotic sufferer is hardly possessed of sufficient grace to go home cured as the result of a single medical conference and humbly confess

that her diseases were wholly imaginary and her long-nursed maladies a pure and simple delusion.

THE INJECTION OF THE SPHENO-PALATINE GANGLION IN SOME OF THE COMMONER DISEASES OF THE NOSE.*

HARRY L. POLLOCK, M. D.,
CHICAGO.

While I realize that a paper like this one, treating of some special subject, might be of greater interest to a society of specialists, still I feel justified in presenting it tonight because a great many of the conditions which I will call attention to are first seen by the general practitioner and are sometimes diagnosed incorrectly and the patient does not obtain the relief which he is seeking.

Probably the title of the paper is somewhat misleading, for although an affection of the sphenopalatine ganglion is in the majority of cases the underlying cause of the trouble, there are other branches of the great sensory nerve of the head, viz.: the trifacial, which must be taken into consideration, as well as some of the other sensory nerves which are intimately connected with the 5th. To understand the rationale of the treatment it is necessary to have a knowledge of the surgical anatomy of the parts and also the distribution of the sphenopalatine ganglion and the nasal branch of the first or ophthalmic branch of the 5th.

The sphenopalatine or Meckel's ganglion is deeply placed in the sphenomaxillary fossa close to the sphenopalatine foramen. It is triangular in shape and is situated just below the superior maxillary nerve as it crosses the fossa.

Its sensory root is derived from the superior maxillary nerve through its two sphenopalatine branches. Its motor root is derived from the facial nerve through the large superficial petrosal nerve and its sympathetic root from the carotid plexus, through the large deep petrosal nerve. These last two join together before their entrance to the ganglion to form the vidian nerve.

The branches of distribution: There are four groups, ascending, which pass to the orbit, the

descending to the palate, internal to the nose and posterior to the naso-pharynx (Gray).

The ascending branches supply the mucous membrane of the post-ethmoidal and sphenoidal sinuses. The descending branches are distributed to the roof of the mouth, soft palate, tonsil and lining membrane of the nose. The internal branch is distributed to the septum and outer wall of the nasal fossa, and the mucous membrane behind the incisor teeth. The posterior branch is distributed to the upper part of the pharynx, behind the Eustachian tube. The nasal nerve, a branch of the first or ophthalmic division of the fifth, enters the orbit by way of the sphenoidal fissure between the two heads of the external rectus, passes obliquely inwards across the optic nerve, beneath the superior rectus and superior oblique muscles, to the inner wall of the orbit. Here it passes through the anterior ethmoidal foramen and entering the cavity of the cranium, traverses a shallow groove on the front of the cribriform plate of the ethmoid bone and passes down through the slit by the side of the Crista Galli into the nose, at the superior anterior angle of the nose. It divides into two branches, the internal and external, which supply the mucous membrane near the outer wall of the nose, as far as the inferior turbinated and also the integument of the ala and the tip of the nose.

As can readily be seen from the wide distribution, there are numerous points which may be irritated and cause symptoms either locally or reflexly at some distant point. Yet, owing to the great area of the nasal mucosa, including the lining of the nasal accessory sinuses, and the fact that the mucous membrane is brought into contact with various irritating substances by breathing and that the sinuses are very often the seat of suppurative processes, we must look here for most of the causes that bring about irritation of the end filaments of the trifacial.

Before alluding to the various conditions and symptoms brought about by these irritants coming into contact with the end filaments, it must be readily seen that there is something else necessary for these symptoms to be produced in certain individuals; yet what brings about the condition of susceptibility in certain individuals is not known. Although we have the aid of the laboratory in making examinations of the blood, urine and all the various excretions and secretions

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of the body, we have not yet been able to determine why this or that individual is affected by certain odors, drafts, pollens, etc., while others inhale the same irritant and are not in any way affected. There are certain theories advanced to the cause thereof. Probably the idea as advanced by Dr. Otto J. Stein is the most plausible. In a paper read before the American Academy of Ophthalmology and Oto-laryngology, 1907, and in one read before the Section of Laryngology and Otology of the A. M. A. in 1908, he gave his views on this point. He believes that the condition is one of disturbed metabolism. This disturbance in metabolism changes the body fluids, so that its effect in turn alters the physiological state of the body tissue and makes them susceptible to various influences. The effect of such perverted metabolism on nerve tissue disturbs its normal functional equilibrium. However, the point which I desire to call attention to is that in these cases classified as neuroses there must be two conditions present, viz.: (a) a susceptible individual and (b) a local irritant.

It is needless to state that in all cases coming to me with the history of irritation of the tri-facial, especially those of irritation of the sphenopalatine ganglion and the nasal branch of the ophthalmic, all local points of irritations have been attempted to be corrected. By this I mean the teeth, gums, eyes, deflected septum, spurs, ridges and all sinus disease, either suppurative or non-suppurative.

There are four general conditions in which I employ the injections:

1. Hay fever, the symptoms of which are too classical to be described.

2. The syndrome of true sphenopalatine neuralgia as first described by Greenfield Sluder of St. Louis in the *New York Medical Journal* in 1908.

The symptoms of the latter are pain, radiating to any or all of the points supplied by the branches of the ganglion. The typical location of the pain is over the root of the nose, in and about the eye, over the frontal region, into the pharynx and tonsillar region, into the ear, back of the mastoid into the occiput, to the neck, the shoulder, the arm and at times even into the fingers.

In a majority of the cases one or more of these points may be involved, but I have never seen a

case where all the points were affected at the same time.

3. Hyperesthetic rhinitis which is similar to hay fever, except that it comes on at any time of the year, is irregular in its time of appearance, its duration and severity. Often the paroxysms are brought about by contact with a specific kind of perfume, a particular flower or the odor from various animals, a slight draft of air or the inhalation of dust. These paroxysms begin with attacks of sneezing, varying in number from 5 to 40 or 50, followed immediately by a nasal hydroporrhoea, i. e., a profuse watery discharge from the nose, and lachrymation. These symptoms may continue for hours and suddenly abate, only to be repeated on succeeding days or when again brought into contact with the specific irritant. As I stated before, these attacks may last a few days or may continue for a week or longer. There is more often no specific cause known. If the nose be examined between the attacks the appearance is usually normal except for a paleness of the mucous membrane, but if examined during the attack the turbinates are turgescent and the mucous membrane red and congested.

4. Post-operative neuralgia: The second class of cases, viz., the true sphenopalatine syndrome, is usually associated with a suppuration of the sphenoid sinus and ethmoid cells and the pain persists after the sinuses have received the proper surgical attention. There are, however, a small percentage of cases of chronic suppurative sphenoiditis and ethmoiditis in which the pain makes its appearance only after the accessory sinuses have been thoroughly opened and drained. These cases we classify as post-operative neuralgia.

Schloesser was the first to inject the sensory nerves with alcohol for the relief of neuralgia. He, however, never attempted to inject the sphenopalatine ganglion. In searching the available literature I find in the *New York Medical Journal*, August, 1909, a paper by Dr. Greenfield Sluder of St. Louis in which the first mention of alcoholic injection of the ganglion is made. In 1907, however, Dr. Otto J. Stein of Chicago suggested in a paper presented before the American Academy of Ophthalmology and Oto-laryngology, the injection of alcohol into the nasal nerve and into the region of the sphenopalatine foramen.

The technic of the injection is quite simple:

I first cocaineize the posterior end of the middle turbinate and wall just posterior to it with a 20 per cent solution of cocaine. After this cocaineization in neuralgic cases, a large number of patients immediately feel relief, and when this occurs we feel confident that the results of the injection will be favorable.

Then a sword needle of Sluder is employed. A straight needle $5\frac{1}{4}$ inches long with a cross bar near the end. The needle is introduced from the septal side of the nose. I then transfix the posterior end of the middle turbinate and press the needle gently through the turbinate until the posterior wall is felt. The needle is then pushed upwards, outwards and backwards, through the bony wall which is the anterior boundary of the sphenomaxillary fossa, in which the ganglion lies surrounded by connective tissue. Usually by tactile sense one feels the needle slip into the cavity. The ganglion is about 0.66 c. m. back of the wall. A 5 c. c. Luer syringe filled with a 2 per cent solution of carbolic acid in alcohol is then attached to the needle and from 5 to 15 m. m. is injected. If the needle succeeds in penetrating the ganglion the patient complains of excruciating pain in the eye, ear, top and back of head and into the shoulder, but should the carbolic alcohol solution merely surround the ganglion the pain is less severe.

The pain usually lasts anywhere from a few minutes to 24 or 48 hours and it is in cases in which the pain was prolonged after injection that the end results to the patient were most gratifying. The number of times necessary to inject is variable. If the ganglion is penetrated the first time as indicated by the severe pain only one injection is necessary. If not, possibly two, three or four attempts may be made at intervals varying from a few days to several weeks. If no relief is obtained after four such injections, I feel that further attempts will be useless. In cases of neuralgia I attempt to inject the sphenopalatine ganglion only; if, however, it is being done for hyperesthetic rhinitis or for hay fever, I endeavor to inject the nasal branch of the ophthalmic as well. This is generally successfully done by first cocaineizing in the same manner the extreme anterior superior angle of the nose at the place where this nerve first enters the nasal cavity, and then injecting a few drops

of the solution at that point. There is comparatively no danger associated with this procedure if performed under strictly aseptic conditions. The only complication I find reported was made by Emerson of Boston, in which he cites a case of severe hemorrhage occurring a week after the injection, which in all probabilities was due to an infection. The only danger lies in striking the sphenopalatine or descending palatine arteries, branches of the internal maxillary.

In only one of my cases did I find any complication. This was a hay fever patient who, a short time following the injection, had a swelling in the cellular tissue around the orbit, followed the next day by ecchymoses. These conditions disappeared in a few days, giving no further trouble.

Results. Unfortunately all of my hay fever cases presented themselves during the attack and consequently I cannot give any definite results. I will, however, say that in some of the cases the symptoms were much milder than in former attacks. In the true sphenopalatine neuralgia a large majority of the cases were completely cured, and these patients have remained free from pain up to date, a period ranging from several months to one and a half years.

In cases of hyperesthetic rhinitis or neuroses the treatment has been most effective. I have found nearly every case cured, and usually with one injection, a small percentage requiring two or more injections. In the post-operative neuralgia I can report the outcome satisfactory; a large percentage of the patients obtained the relief sought.

In illustration of the last three types, for I feel that those of hay fever have not been fully tried out as yet, I cite the following histories:

Mrs. M. G., age 44 years, first consulted me Dec. 10, 1912, for tinnitus in right ear, and sometimes complained of burning sensation in face and in back part of head on right side.

During 1913 was treated for the tinnitus, a tenotomy of tensor tympani having been done. Also complained of pain back of the right mastoid. The tinnitus gradually improved and I did not see her until Sept. 14, 1913.

She then complained of severe pain over the right eye, right side of head, right ear and extending down into the shoulder and arm. Was given pyramidon and salicylates without any improvement. On Oct. 4, 1913, injected the right sphenopalatine ganglion with 1 per cent carbolic acid in alcohol solution, employing about 10mm. The pain was excruciating and the patient very sick and miserable for 48 hours, when the

pain gradually ceased. On Oct. 10, 1913, patient stated that all pain had disappeared and she felt fine.

Nov. 13, 1913, still feels fine but complains of some stiffness in the right tonsillar region, but examination of pharynx and larynx showed everything in normal condition. I did not see the patient again until April, 1914, when she was still free from pain and felt good except for the tinnitus, which was still present.

Case 2. Miss E. S., aged 31 years, first consulted me April 7, 1913, with history of having had a severe cold three years ago. Since then has had attack of severe sneezing in the morning, followed by profuse nasal discharge lasting about two hours. These attacks come on at irregular times, but less often during the month of August. The attacks are frequently brought about by the odor of perfume.

Examination of the nose shows it to be normal, except for a slight congestion of the mucous membrane. A general examination by the internist proved to be negative. Was treated with local applications without relief.

On June 27, 1913, both sphenopalatine ganglia were injected with 2 per cent carbolic acid alcohol solution with very little pain. On July 1 septal nerve injected with same solution.

Aug. 11, 1913. Has been free from symptoms. Yesterday she took a long dusty automobile ride and this morning had a slight attack.

Nov. 11. Feels fine. Has been perfectly well all this time.

Feb. 21, 1914. Felt fine until yesterday when she used an excessive amount of perfume and had a slight attack.

May 20, 1914. Has been well ever since. (The last visit.)

Case 3. Mr. H., aged 38 years, first consulted me in December, 1913, complaining of difficulty in breathing. A constant discharge from his nose and postnasal dripping, but no pain. Examination showed a deflected septum with large ridge on left side. There was a muco-purulent discharge from under the middle turbinated and also postnasally. X-ray picture showed the ethmoids blocked out. A submucous resection of the septum was first done and later the middle turbinated removed and the ethmoids thoroughly curetted and the sphenoid opening enlarged. There was quite a severe reaction following the operation which continued for several months. During this period he developed pain over the eyes, and in the back part of the head and behind the mastoid. He was treated locally with but little relief.

In June, 1914, I injected both sphenopalatine ganglia, which gave him a good result for about 2 weeks, when the pain returned. I injected again in July, 1914, this latter procedure giving him relief. I last saw him in October, 1914, and he was still free from pain.

A PRELIMINARY REPORT ON A NEW METHOD OF TREATMENT FOR CEREBROSPINAL SYPHILIS.*

G. CARL FISHER, M. D.,
CHICAGO.

The present methods of treatment for cerebrospinal syphilis are not in every way satisfactory.

It is not my wish to point out, at this time, the danger or the uncertain results of intraspinal treatment, as it is given today, but to suggest what is to me a new method of treatment for this type of infection, which gives results equally promising and I believe is much less liable to offer serious complications.

This method requires no special technic, other than is necessary to give salvarsan intravenously, and to do a simple lumbar puncture.

The patient is carefully examined to determine whether the case is a suitable one for salvarsan; if so, a liberal amount is given intravenously, wait twenty minutes and then do a lumbar puncture and withdraw from ten to twenty cc. of spinal fluid. The patient is then placed in bed for ten hours and the usual amount of care given a salvarsan patient is rigidly observed.

The reaction offered by the patient, after this technic, may begin within a few minutes, and is more intense than is found when salvarsan is given without the withdrawal of spinal fluid or is found after a simple lumbar puncture.

I believe more careful judgment must be given these patients to determine the number of salvarsan injections necessary, as well as the time interval and the amount to be given at each treatment.

I have given such treatment at from ten to twenty-day intervals, that is, give an intravenous salvarsan, wait twenty minutes and then withdraw from ten to twenty cc. of spinal fluid by lumbar puncture.

All of my patients who have been treated by this technic during the past 8 months say they are better.

The spinal fluid findings show rapid improvement; clinically they are better. I firmly believe that the change for the better must not be explained, by saying that it is due to euphoria, or that such apparent improvement may not be

*Read before the South Side Branch Chicago Medical Society, March 26, 1915.

permanent and is simply a period of remission of symptoms so commonly found in these patients and so well described by Ehrlich as a condition of non-sterilizing immunity. Their improvement has been more progressive than I have seen in patients treated by other methods, which seems encouraging.

Some of these patients have received intensive mercury and iodide treatment in conjunction with the salvarsan; others have received only salvarsan.

I am not ready to say that I am more pleased with the results of the combined treatment than with salvarsan alone.

There are many points of extreme importance which remain at issue that bear directly upon this technic. A few may be mentioned at this time, namely:

How soon is the normal amount of spinal fluid replaced after a lumbar puncture in our cerebrospinal patient?

Where does the spinal fluid come from and how?

What is the greatest amount of spinal fluid that may be safely withdrawn at one time and how often can it be repeated?

How much of the salvarsanized serum or other remedial agents find their way into the spinal fluid after each treatment by the above mentioned technic?

Is the lowered pressure in the spinal canal and the slightly increased pressure within the vascular system, which is produced by this technic, more favorable for the remedial agents in the body fluids, to enter the subarachnoid space?

What are the factors which favor the passage of fluids, from the blood stream, into the subarachnoid space?

Is the pathology a factor which modifies the passage of remedial agents or other fluids into the subarachnoid space?

It is now quite generally accepted that it is possible to find arsenic in the spinal fluid after an intravenous injection of salvarsan?

I firmly believe that one patient may offer more resistance to such passage than another and that when we learn how to overcome this factor we will be able to extend more hope to this class of unfortunate patients.

The cerebrospinal patient, with a persistent negative Wassermann in both blood and spinal fluid, which does not change with the so-called

provocative treatment, and the type at the other extreme, from a serological standpoint, which is commonly called the Wassermann fast type, that is, where both blood and spinal fluid remain strongly positive and do not change with intensive treatment, are equally slow, if at all amenable to any kind of treatment which we offer today.

After a rather exhaustive review of the literature, I have been unable to find any report of cases that have been treated by this technic, therefore I trust that this report will stimulate further investigation in this field.

2136 Indiana Avenue.

ANESTHETICS.*

F. C. VANDERVORT, M. D.,

BLOOMINGTON, ILLINOIS.

District Surgeon, Illinois Central Railroad.

I take up the subject of anesthetics with some misgivings because it would seem that about all has been said on this subject. However, I wish to take up the subject from the point of personal experience. I do not intend to go over the whole field of anesthetics, but to give you the benefit of my experience as to the best and safest way to put a patient to sleep so the desired operation can be performed. A poet has said, "Be thy sleep silent as the night is, and as deep." That is what the surgeon says to his patient, and what he would impress upon his anesthetist to learn by heart. Patients nearly always dread the going off to sleep. There is always a fear of that sleep that knows no waking, hence the anesthetic must be pleasant or else the patient must be prepared beforehand so that the first whiffs will not cause a revulsion. It will be admitted by all that ether is by far the safest general anesthetic, and also the most unpleasant one to the sense of smell. If it is the safest, then it is our duty to use it in justice to our patients. How shall we overcome the unpleasant features such as strangling, coughing, nausea and excessive secretion of mucus? I have been giving ether at the Kelso Sanitarium and Hospital now regularly for about six years to about three patients a week. That will cover about nine hundred anesthetics.

We always precede the operation by a hypodermic injection of a tablet of H M C. As to

*Read before Iroquois-Ford County Medical Society at Paxton, Ill., March 2, 1915.

apparatus we use precisely the same as they do at Rochester. Recently Dr. Chas. Mayo said, "Until we find something better we shall use the method now in vogue here." It requires no paraphernalia and is simple. Anyone can learn to be an expert in a little time. The amount of H M C must be regulated according to sex, age and weight of the patient. A man will require a larger dose than a woman and a heavy man a larger dose than a light one. It must also be given sufficiently long before beginning the anesthetic to make the patient drowsy. Very few patients who have been properly injected, remember going to the operating room. They are apparently awake, but they are really in twilight sleep, which is the ideal condition. In feeble people or those of weak respiration less of the H M C should be given because of the influence it has upon the respiration centers. Ether kills by paralyzing the respiration centers, the heart usually beating for a long time after respiration ceases. There is more danger from anesthetics in throat operation than in any other kind of operations. The reason for this is that operations upon the throat have a tendency to paralyze respiration. Not more than one out of twenty is nauseated after the operation. In nearly every case after serious operation an opiate is required, but where H M C has been given this is not necessary.

In all these anesthetics we have never had any cases of collapse or any unpleasant symptoms that have ever alarmed us, except one, and in this case it was due to the diseased reflexes of the patient. Objectors say you cannot tell about the reflexes of the pupils when the H M C has been used. This is not true. After the injection has been given and the patient has been brought to the anesthetic room the pupils are widely dilated. After he comes under the influence of the ether the pupils are contracted and remain so during the proper administration of the ether. One can easily tell how the case is going by watching the pupils. By use of this preliminary injection we make ether not only the safest but also the pleasantest anesthetic. When the hypodermic injection has been given an hour before the operation the patient is half asleep already and should under no circumstances be talked to or aroused at all. I think no one can tell another how to give an anesthetic. The art comes by

practice with a mind open to conviction. One thing is sure, the anesthetist must attend strictly to his business and never become so interested in the operation as to forget his part of the case. Remember the motto: "Be thy sleep silent as the night is, and as deep." It is really easy to keep this silent and deep sleep after it once has been attained. When the operator touches the peritoneum the sensation is greater and the patient requires more ether.

By attending strictly to his business the anesthetist can regulate the sleep of the patient. It is best however, that the anesthetist keep in touch with the progress of the operation in order that he may know how to regulate the anesthetic. What the world wants is a safe method of anesthetizing without expensive and cumbersome paraphernalia. I have never used the method in vogue in some hospitals, but have seen it, and it seems so difficult, and surely so complicated, as to render it unsafe to anyone except an expert. The responsibility and importance of the anesthetist has not until recently been appreciated. A capital operation cannot be performed without the anesthetist. The laborer is worthy of his hire in this field as well as in other fields.

This leads me to say that the anesthetic fee should never be less than ten dollars in all but the simplest and shorter operations, and in these it should be five dollars. When the anesthetist knows he is being paid for his work he will not hurry, or be rushing things along to get away to profitable work. This is nothing more than human nature. An anesthetist who does some operating himself will appreciate what it is to have that part of the operation well taken care of. What I have been trying to do is to persuade you that we already have a very perfect anesthetic used in the way I suggest, and it is not necessary to scour the world over for a good anesthetic. Study the one you already have, rather than fly to others you know not of, and cease this pleasing hope, this fond desire for something better.

Perhaps I should say something about the method of administering the ether. It must be given by the open method. That is, by pouring the ether upon an open mask, just the same as you do chloroform, except with the latter we drop it on, drop at a time. The old way of giving ether, by suffocating the patient into insensi-

bility was horrible. Always commence by giving the ether very slowly so the patient will not feel smothered and resist in spite of solicitations to the contrary. Patients differ so that no absolute rules can be laid down; some will require more air than others and so you must study your patient. Hardly ever do two people act in the same way. The amount of air breathed is controlled by covering the mask with a towel or roll of gauze. Put vaseline on mouth and lips to prevent irritation of the skin by ether dropping upon it. Put moist sponges over the eyes and pin a towel around the head so as to hold the wet gauze on the eyes. This is to prevent the ether from getting into the eyes by any possibility. Watch the breathing continually and control it by the amount of air or oxygen you permit the patient to have. Many patients do not breathe well on account of the tongue falling back into the throat. Usually this difficulty can be obviated by pulling the chin upward and forward which is best accomplished by pulling forward on the angle of the jaw. In case this does not cause easy, quiet breathing, then it will be necessary to pull the tongue out of the mouth with forceps and hold it with the fingers and a piece of gauze. Do not injure the tongue. By care and watchfulness the patient can be kept quietly asleep without any risk. I do not like to hear a patient breathing heavily; neither does the operator, and besides it is contrary to the poet's idea. Do not overdose the patient. Keep him just so he is relaxed and insensible, so when the ether is stopped he will almost immediately be wakable. In children and in very short anesthetics chloroform is a very satisfactory anesthetic but must be given with more caution than ether. Ethyl bromide will serve fairly well in operations for adenoids in children. Of course, it is better not to use anything in these cases except some local anesthetic. Somoforn has been weighed in the balance and found wanting; yes, and dangerous, too. It hardly seems worth while to say anything about spinal anesthesia, for I saw a professor of anesthesia, in a large hospital in London, try three times to make the injection and failed. Then the surgeon took a hand at it and succeeded and I must say that as far as the anesthesia was concerned, it was a success, the patient, an old diabetic, lying quietly on the table while the surgeon amputated his thigh. The point I make is its impracticability. Thus I will con-

clude: if you want to guarantee your patient the saying, "Be thy sleep as silent as the night is, and as deep," give him an H M C and ethyl oxide and he will sleep.

NORMAL CHILDBIRTH AND HOW TO OBTAIN IT.*

RAYMOND E. HILLMER, M. D.,
CRESCENT CITY, ILL.

Gentlemen: The request of our secretary for a paper to be read for your consideration came to me as a great surprise, and I accepted only because I thought him pressed for material and not because I (a youngster amongst you) presume to teach you anything.

I chose for my subject, "Normal Childbirth and How to Obtain It." Perhaps I should have added, "In a Natural Manner," or a rival to "Twilight Sleep."

While I do not intend to expound the so-called "Twilight Sleep" of Kroenig and Gauss, I do mean to call your attention to a method of preparing the parturient woman for labor which is easy of accomplishment and absolute in its effects, one which will facilitate labor in the most natural and easy terms; not by deadening the brain centers with narcotics and robbing the mother of her natural right (the infant directly after birth), but by preparing the mother and babe, not for an ordeal of "fire and water," but for an easy natural birth to be looked back upon with pleasure and thanksgiving.

The first requisite of this preparation lies with yourselves; it is psychological and consists in *believing* what you tell the woman.

The second is likewise psychological, and is made up of making your patient believe what you say—that it will be easy.

The third is good business tactics on your part and excellent consideration of the mother to be, to-wit: Educate your pregnant woman to consult you *early* in pregnancy.

Fourth, prepare your fetus. You all know the size of a baby in utero can be controlled by the simple method of diet. I cannot put down any hard and fast rules regarding this as our patients differ in their ability to assimilate food; that you must study out for yourselves on each individual case. This much I can say, as a general rule;

*Read at the meeting of the Iroquois-Ford Medical Society, March 2, 1915.

insist on plenty of red meats early, gradually withdrawing until the third month, when meat should be allowed only twice a week.

The ideal baby from every standpoint should weigh from seven to eight pounds at birth—have you ever noticed that nature so decreed it? Think back and average up your infants' weights.

This question of diet not only prevents an excess of weight, but also controls the bony structure of the infant, the soft-boned baby being the easiest for the mother to give birth to for reasons which I do not have to advance to you.

Now, as to medical treatment. From the earliest days keep careful watch of the mother, correct any little defects that may present themselves, such as hyperacidity and constipation. See to it that elimination is normal, the skin and kidneys active. Put your expectant mother on small doses of Mitchella and Macrotys, about five minims of each to four ounces of water to be taken three times daily in teaspoonful doses for the first two months. Increase to ten minims the third and fourth months and to fifteen minims the following three months; the eighth and ninth months have your four-ounce mixture contain a full drachm of each to be taken every two hours. If the abdomen is tight have her rub olive oil into it occasionally and when the word comes to you, "Stand not upon the order of your going, but go at once," for you will have no time to spare. Why? Because the woman put under such treatment does not realize herself how short her time is; especially is this true of the multipara who is in the habit of putting in long and painful hours. There will be no painful hours, the woman will experience a few sharp contractions at long intervals and a few little teasing shooting pains to which she will pay no attention, but mark you, if you are wise tell her to let you know at this time; at the very last there will be one long continuous contraction which may lead to a word from mother, but will also bring forth baby; that last pain and a very few intermediate ones are all that she realizes at any time.

In January I stepped into the kitchen of a certain house to find the soon-to-be mother washing dishes. While working around to do a few necessary things I elicited the facts that she had felt one or two sharp pains early that afternoon, a few of the teasing variety just before supper, which she was preparing herself. After finishing her supper she started to wash up the dishes and

when through with that, which was not over ten minutes after my arrival, she walked into the bedroom and was arranging some baby clothes when she suddenly caught at the dresser drawer, never saying a word, but hanging on tightly for about three minutes. I immediately insisted upon an examination which was quite naturally granted and found a soft patulous os dilated to the size of a half dollar. I insisted upon the couch at once and was laughed at as it hadn't started to be hard. Nevertheless, I insisted and stepped out into the other room while she prepared herself, prepared *herself*, mind you, for the bed, which I had previously prepared for her. A kindly neighbor woman coming in at that time offered her the vessel which she accepted and while seated was taken with the last long contraction, which I easily recognized by the resultant yell. Between us we lifted her to the bed hurriedly and the baby was born at once, the waters being expelled into the vessel before she knew what was taking place. Result: A strong healthy baby and a laugh from the mother in less than three minutes after giving birth to it, no bad after effects and no loss of consciousness.

That, gentlemen, is what I call normal childbirth and it can be secured by you every time by following the easy rules of psychology, the care of mother and the child in utero plus the simple treatment laid down to you.

I should like to say this idea is not original with me, but so far as I know belongs to Dr. Finley Ellingwood of Chicago. It has, however, been followed out by me at every possible opportunity for the past five years with such uniform success that I deemed it worthy of mention.

I might cite many such instances, perhaps one more, which was of especial interest. I will give it to you in a condensed manner and it may help to drive home my claims.

Mrs. "L," a primipara, thirty-seven years of age, small, of bony and muscular anatomy, was delivered of a healthy girl baby in less than one hour of actual accouchement, and with such a sense of wellbeing and lack of physical pain that she refused to let her husband call the nurse that was engaged "at that hour of the morning," it being rather early.

If these facts have interested you I am very glad to have been of service. If you are bored I apologize just as heartily.

Gentlemen, I thank you.

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MAY, 1915

Editorials

THE ANNUAL MEETING.

In a few more days the Annual Meeting of the Illinois State Medical Society will convene. It now gives promise of being the largest meeting the Society has ever held. Springfield is a rather popular place as a convention city, and the fact that the legislature will be in session adds another drawing card for a large attendance. An ample hotel accommodation is another factor in securing a good attendance. At times in the past this matter has been overlooked.

The largest factor, however, in securing a good attendance is the activities of a Secretary and a Committee of Arrangements. In this instance our Secretary and Local Committee have left nothing undone which they could do to insure the comfort of all members attending and to provide entertainment for all while in Springfield. If the members of the Society are only one-half as enthusiastic or make one-half the effort that your Committee and Secretary are making, then every member of the Association will be in attendance at this meeting.

The scientific program is, of course, the para-

mount object of the meeting. The titles of the papers to be read make a program of merit, and if one may judge these papers from the names of their authors, the Association will be assured a scientific treat not often excelled.

The House of Delegates will, no doubt, have a number of questions to deal with of vital importance. There are several bills now pending before the Legislature which may not be disposed of before that time, and on which the delegates may advise.

The Medico-legal Committee reports will be of extreme interest to the Association.

The Section on Public Health and Hygiene is offering an especially valuable program and is inviting the Health Boards of the State to attend.

These and many other equally important matters all tend to make this the most interesting and valuable meeting the Society has ever held.

It seems to us that every member of the Society should make an effort to attend this Annual Meeting. It would be interesting to know the number of members who have never attended a State Meeting.

If the attendance is as large as we think it will be the officers of your Society will feel justified and repaid for the unusual efforts they have made to make this year's meeting a huge success and will enlarge their scope and efforts for next year.

PUBLIC HEALTH AND HYGIENE SECTION.

The chairman of this Section, Doctor R. R. Ferguson, hereby extends an invitation to every local Board of Health in every city and town in Illinois to be present at its meeting in Springfield, on Wednesday, May 19, 1915, and to enter into the discussion of the important papers to be presented.

No better time nor place could be chosen than at this Public Health Meeting of our State Society to become acquainted with the men throughout the state who are doing work for the people similar to that which you are doing as members of local Boards of Health; and this is the place to exchange views on a variety of subjects.

Both the President and Secretary of the Illi-

nois State Board of Health will be with us and will present papers, the discussion of which will be of inestimable value to everyone present.

The Chicago Medical Society Milk Commission will be represented by Doctor J. W. Vander-slice and Doctor Grace Campbell, who are able to present the subject of "Certified Milk" in the best manner possible since they are active members of one of the largest commissions in the United States.

Again "The Collection and Disposal of City Wastes" will be handled by Mr. Paul Hansen of the University of Illinois, Water Department, and in itself will be well worth your trip to Springfield.

Another valuable paper on "Co-operation in Public Health Work by Adjacent Municipalities" by the Commissioner of Health of the cities of Peru, Oglesby and La Salle, will give us the actual field experience of the co-operation possible to all nearby cities.

Could you ask for a better presentation of the subject of Public Health than is represented in the above papers, the program of which will be found on another page?

Let us fill our room to overflowing and thereby stimulate the Section on Public Health and Hygiene to greater work.

A REMARKABLE RECOGNITION OF THE MEDICAL PROFESSION.

Dr. C. St. Clair Drake, the very capable and genial secretary of the State Board of Health, has the unique distinction of being the only person ever asked or permitted to address the members of the Illinois State Senate while in full and regular session.

During the debate on the Vital Statistics Bill (S. B. 213) threatening opposition developed. The Senator fathering the bill asked for and secured unanimous consent of the Senate to have Dr. Drake appear before the members in behalf of the bill. After forty minutes of explanation and discussion the bill was passed unanimously.

THE MEDICAL LEGISLATIVE SITUATION.

The Optometry Bill (H. B. 9) was reported out of the Judiciary Committee Monday, April 26, at 5 p. m., with recommendation that it do

pass, four members out of forty-five being present, as follows:

Solomon Roderick, 1328 South Spaulding avenue, Chicago.

O. P. Tuttle, Harrisburg.

F. E. Williamson, Urbana.

W. P. Haladay, Georgetown.

All four votes in affirmative.

A BAD BREAK.

"Which I wish to remark—

And my language is plain—

That for ways that are dark

And for tricks that are vain,

The heathen Chinese is peculiar."

In the lines above Harte stated a truth that has become proverbial. But for utter perversity the things that sometimes happen to discussions before dignified medical societies when (or before) they appear in print would get the speakers' goats easier than the Chinese purloined the pelf of Harte and Nye in the historic incident embalmed in the stanza above.

To garble the remarks of one speaker would be plenty, but to ride roughshod through a discussion, omitting all the speakers' names except the first, and thus attributing to him sentiments and experiences that he abhors—that, surely, is adding insult to injury. Then it is time for the editor to take to the bomb proof and write his apology—or resignation.

Our attention has been called to an error in the April number of the JOURNAL in reporting Dr. O. T. Freer's discussion of Dr. Charles M. Robertson's article: "Ethmoidal Exenteration."

Through an oversight the entire discussion following Dr. Robertson's article in the April number is attributed to Dr. Freer. Dr. Freer's discussion ends with line 14 of the first column on page 323 of the April number. The next paragraph beginning: "He reported an operation for extensive disease of the ethmoid, in which he unfortunately entered the periorbital," and all succeeding paragraphs of the discussion do not belong to Dr. Freer's remarks. Dr. Freer wishes it emphasized that he has never entered the orbit from the nose in operating and that the report of this accident in the discussion referred to was made by another speaker at the meeting in question.

The paragraph beginning, "He reported," should be attributed to Dr. H. W. Loeb of St. Louis; the next paragraph to Dr. R. H. Good and the last three paragraphs to Dr. Robertson (in closing).

ACTIONS FOR CIVIL MALPRACTICE.

ROBERT J. FOLONIE, L. L. B.,

CHICAGO, ILL.

Eighth Article.

It is not always possible to anticipate before trial the exact nature of the claims asserted or the defense which will be necessary. As a rule the basis of a claim for malpractice can be anticipated with reasonable certainty and preparation made accordingly, but now and then an utterly inexplicable situation arises, requiring quick thought upon a trial and energetic work in preparing the case while on trial.

In the case of Dr. Q., now dead, the patient was eighty-four years of age when her case was called for trial and the doctor was over eighty years of age also. He had treated the patient for an ulcer of the leg, consequent upon senile sclerosis, and the leg becoming gangrenous, amputation was performed. The patient remarkable to state, survived the shock of the operation and brought suit, alleging negligence in general terms.

The doctor had prescribed a salve for the treatment of the ulcer, but did not have a copy of the prescription, nor was he certain of its exact contents. Enough appeared to indicate that the loss of the limb was attributed by patient and her attorney to an improper prescription.

A canvass of pharmacies in the neighborhood of her home failed to disclose the prescription, and the trial was commenced with no information respecting the exact contents of the prescription.

Upon the trial the plaintiff was first placed upon the stand and testified to the attendance upon her by the physician; that he prescribed medicines which she used and that her leg was lost. A detailed cross-examination of her was made with no clear idea of what would help and what would hurt, but with the sole object of eliciting all the facts possible and the confidence that these would in some way prove helpful when the whole case was finally submitted.

Patient described the medicine which she had used on the limb as a salve, the color of which she could not recall. The prescription had been taken out by some member of her family to have filled and she did not know where the prescription was filled and this was the substance of her story, together with description of the gangrenous nature of her leg subsequently and its amputation. A member of her family testified taking the prescription upon a date certain to a drug store mentioned by name and there filled.

The prescription book of the druggist was produced. The person who took prescription to the druggist doubtfully identified a prescription as the one which had been filled and returned to the patient for use on the ulcer. The prescription in question was unsigned and was for a liniment so strong that it might result in destruction of tissue. It will be noted that the patient had described a salve, while this prescription was for a liniment.

An assistant was immediately dispatched in the neighborhood of the drug store to interview all veterinarians and physicians who had prescribed for horses, on the theory that the liniment was a horse liniment.

Fortunately for the relief of the defendant and his attorneys, the veterinarian who had written this prescription was found before completion of the trial. He was prepared to testify that the prescription was his own and not that of the defendant and that it was prescribed for a horse, and not for a human being. Through failure to properly connect the prescription produced by the druggist with the defendant, by showing that it was in his hand writing, or otherwise establishing its identity with the one delivered by defendant to patient, a verdict for defendant was directed by the court. The evidence of the defendant and veterinarian was therefore not produced.

The rather unusual circumstances under which the claim was asserted under this state of facts was subsequently learned to be that when the patient lost her leg she attributed its loss to improper medication and immediately consulted a lawyer. The container in which the salve had been contained had been thrown away, so that resort was had to the date of the prescription and the recollection of the family of the place where it had been filled, for its identification. Only

one prescription was found on that date in the drug store not accounted for as the prescription of others—that was the unsigned prescription slip mentioned. Of course, connecting the defendant with this prescription was an easy matter to a person who would assume that loss of the leg was due to his medicines without knowing what they were, so that to their own satisfaction all the links were complete.

These hypotheses were rendered unquestionable when a physician was consulted who naturally advised that the medication shown in the unsigned prescription was entirely improper for use on an ulcer on a human body.

The pity of such a situation is not to be lavished only on the physicians, but should also extend partly to the patient, who by ill-considered advice goes through all the anxieties, blasted expectations and sense of wrong that grows out of such a situation, when a thorough investigation and preparation would show how completely baseless the claim is.

RUSH MEN, ATTENTION—ON TO SPRINGFIELD.

Grand Reunion of the Rush Alumni Association in Springfield during the meeting of the Illinois State Medical Society, May 18, 19 and 20. Arrangements have been made for a grand gathering at the St. Nicholas Hotel on Wednesday, May 19th, at the noon hour. It is demanded that every alumnus be present to make this meeting a record breaker and to show his loyalty to the old school. Be on hand to meet your classmates. Let the banquet hall reverberate with the songs and shouts of our college days. Write or telephone to our class mate, Dr. F. D. Fletcher, local chairman, Leland Office Building, Springfield, Ill., telling him you will be on hand. Do it now. Don't wait until tomorrow.

DR. JOHN RITTER,
Chairman Alumni Reunions & Relations
Committee.

THE NEW COMMISSIONER OF HEALTH.

The following salutatory* of Dr. John Dill Robertson, the recently appointed commissioner of health of Chicago—especially his reference to “working in harmony with the medical profes-

sion”—will be read with pleased anticipation by the profession of Chicago whose activities are in touch at so many points with the Department of Health:

In assuming the duties of the office of Commissioner of Health of the City of Chicago I am keenly alive to the responsibilities of the position. I think it may be taken as fundamental that the great, big factor in community work for community good is team work, which is the slogan of the present city administration.

My entire energy will be exercised in the advancement of the public health and the sanitary welfare of the people of Chicago. Publicity and education are important factors in public health work. It is the province of the Department of Health to spread public health knowledge, to teach people how to keep well.

The present efficiency of the Department of Health will be maintained, and its scope enlarged as means permit. Before any new work is undertaken, careful consideration will be given to every phase of it and expert advice solicited from those who possess it.

It is desired to have the Department of Health work in harmony with the medical profession and all organizations of the city whose aim is better hygienic conditions.

Chicago is a splendid city. Its humblest citizen should be proud of it. No one should be too high or too low to take an interest in its health and progress. If it is to be the greatest city in the world it must first become the healthiest city in the world. Am I asking too much in requesting the people of this great city to give me their earnest and cordial support in making Chicago the safest city to live in on the American continent?

JOHN DILL ROBERTSON, M. D.,
Commissioner of Health.

ATTENTION, MEMBERS ILLINOIS STATE MEDICAL SOCIETY!

Important changes have been made, and additional attractive features have been added to the itinerary of the Chicago Medical Society Special Train to the A. M. A. Convention and Exposition at San Francisco the week of June 21, 1915.

Owing to the fact that most of our members will stop over at numerous places on the return trip, the cost of return sleeper, \$13.00, has been deducted, making the total cost of trip \$141.00, thereby saving this amount, as most of their journey returning will be made in the day time.

Four very important side trips in San Francisco have been added without additional cost.

WHAT THE TOUR INCLUDES.

First-class railroad ticket to San Francisco, Los Angeles, San Diego and return.

Pullman Standard Sleeper to San Francisco, giving an entire section to two persons.

*From the Bulletin, Chicago Department of Health, May 1, 1915.

If two persons occupy one berth there is a reduction of \$10.00 on the two tours.

Transfer of member and checked baggage to and from hotel at San Francisco.

Seven consecutive days at Hotel Plaza in San Francisco (only two to double room), including seven breakfasts.

Seventy-five per cent of rooms with private bath, those making first reservations having first choice.

Seven admissions to Panama-Pacific International Exposition.

Admissions to twenty attractions within the Exposition grounds.

Steamer trip (4 hours), San Francisco Bay, viewing the Golden Gate and Exposition grounds.

Key trolley trip (7 hours), through Oakland, Alameda and Berkeley, visiting the University of California, famous Greek theater and Idora park.

Trip to Mt. Tamalpais (8 hours), on the "Crook-est Railroad in the World."

"Trip to Chinatown" with guide escort.

*Official Itinerary of the Chicago Medical Society
Special Train.*

Leave Chicago 10:00 p. m., June 17, via Rock Island Lines. Arrive Belleville 6:15 p. m., June 18, via Rock Island Lines. Arrive Colorado Springs 7:30 a. m., June 19, via Rock Island Lines.

Leave Colorado Springs 10:30 a. m., June 19, via Denver & Rio Grande. Arrive Salt Lake City 11:30 noon, June 20, via Denver & Rio Grande (Mt. time).

Leave Salt Lake City 2:30 p. m., June 20, via Western Pacific (Pac. time). Arrive Oakland 5:50 p. m., June 21, via Western Pacific. Arrive San Francisco 6:30 p. m., June 21, via Western Pacific.

Returning over any Central or Southern route you may choose. Returning via Northern Route \$17.50 extra.

The Plaza Hotel has about 75 per cent of its rooms with bath, and Gregory Tours have waived their original extra charge for rooms with private bath, therefore those who make their reservations first will be assigned to rooms having private bath.

MAKE YOUR RESERVATIONS NOW—LAST CALL.

Dr. R. R. Ferguson, Chairman Transportation,
Chicago Medical Society,
3923 N. Keeler Ave., Chicago, Ill.

Dear Doctor:

Please reserve accommodations for persons on our Panama-Pacific International Exposition Tour. I enclose herewith check for \$....., being first payment on each reservation (second payment will be made in thirty days).

Make all checks payable to Gregory Tours or Dr. Ferguson.

Signed

Address

Date.....State

Public Health

COUNTY MEDICAL SOCIETIES BOOK HEALTH BOARD FILM.

The response of the county medical societies to the invitation of the secretary of the State Board of Health to cooperate with him in an effort to have the birth registration film entitled "Tommy's Birth Certificate" or "Why Births Should Be Recorded," shown in the motion picture theaters throughout the state, has swamped the board with requests.

More than 350 advance bookings have been received and in order to fill these engagements within a reasonable period of time two duplicate reels of this film story have been ordered.

It is conservatively estimated that fully two hundred thousand people will view this film by reason of these bookings, and it is believed that its showing to so great an audience will do more to advance the cause of birth registration than any move yet undertaken.

Incidentally, this plan for reaching the public through the agency of the county medical societies proves to be most effective and points to great possibilities.

The State Board of Health is particularly enthusiastic over the success of the movement and is now engaged in working out plans for carrying on an important phase of its health propaganda in conjunction with the county societies.

NEW OFFICIAL REGISTER OF PHYSICIANS SOON READY FOR DISTRIBUTION

For several months past the medical registration division of the State Board of Health has been engaged in preparing a new official register of Illinois physicians and within the next two weeks copies of this directory will be ready for distribution.

This book contains the name and address of every physician now practicing in this state, also giving the years of graduation and licensing and the school from which he received his diploma.

In addition to listing practicing physicians the directory also presents a complete roster of Illinois licentiates, including those retired, moved away or deceased.

It is believed that this directory is as accurate

as great care can make such a work. In its preparation the State Board of Health has been rendered very valuable assistance by the secretaries of the various county medical societies and by the directory department of the American Medical Association.

Copies of this register can be obtained on request addressed to Dr. C. St. Clair Drake, secretary and executive officer of the board.

NEW STATE HEALTH BULLETIN DUE DURING MAY.

The monthly bulletin of the State Board of Health, issues of which has been long delayed on account of lack of funds for its publication, will make its appearance during the current month, the legislature having provided funds to the State Board of Contracts for this and similar purposes.

Five issues of the bulletin are now in the hands of the state printer.

STATE BOARD OF HEALTH OPENS BRANCH LABORATORIES IN NORTH AND SOUTH ILLINOIS.

In accordance with the policy of Governor Dunne to make his public safety departments of increasing service to the people of Illinois, the State Board of Health, recognizing the fact that its diagnostic laboratory in Springfield is too far removed from the people of the northern and southern portions of the state to be of any real service in the way of diphtheria diagnosis, has opened two branch laboratories, one in Chicago to serve all north state communities outside of Chicago, and one in Mt. Vernon for the accommodation of all south state citizens. The main laboratory at Springfield will, of course, continue to provide for the people of central Illinois.

For the present, at least, these branch laboratories will confine their services to diagnosis of diphtheria. All other specimens for laboratory examination will go to Springfield.

Physicians desiring to submit specimens to the laboratory for the diagnosis of suspicious throat cases or for the purpose of determining the time when quarantine may be safely raised in diphtheria cases, can secure the required culture outfits in self addressed shipping tubes at any of the numerous free distributing stations (formerly known as antitoxin agencies) which

have been established throughout the state, at least one such station being located in each important town.

No charge is made for this service.

PENDING LEGISLATION OF SPECIAL INTEREST TO THE MEDICAL PROFESSION.

An unusually large number of bills directly and indirectly affecting public health and the medical profession have been introduced in the Illinois legislature during the present session. Many of these are of more than ordinary merit; fewer than usual are vicious in character. Comments heard among old-timers familiar with medical legislation indicate a better feeling towards the profession. The fact that physicians of the state are, more than ever before, devoting their energies in behalf of constructive legislation has tended to better feeling on the part of the lawmakers and, consequently, when protests against vicious legislation are lodged they now are received with better grace and apparently they carry greater weight.

Among measures of a constructive character the following are notable:

The Cornwell bill, providing for the registration of births and deaths. This measure has been indorsed by the State Board of Health, State Medical Society, Chicago Medical Society, Chicago Health Department and Board of Education and practically every women's organization in Illinois. It passed the senate April 28th and is now in the house, where it is being backed by Representative Edward J. Smejkal, chairman of the appropriation committee. It stands a good chance to pass the house; it will if supported by the profession actively. At the time it was called up on third reading in the senate and threatened with defeat, Senator Cornwell succeeded in having the senate consent to hear Dr. Drake, secretary of the State Board of Health, in behalf of the bill, this being a courtesy never before extended to a non-member of the senate, at least while that body was in regular session. The final vote on the measure stood 32 for and none against it.

The Burres bill (H. B. 477), amending the Medical Practice Act, in a way providing for supervision over licentiates now exempt on account of a defect in the present law. The only opponents of this bill are the quacks and crooked prac-

tioners, who fear regulation. A similar bill has been defeated several times in the past through the influence of newspapers, fearing loss of the quacks' advertising. This bill should receive the immediate active attention of all legitimate practitioners. It is now on third reading in the house and has yet to reach and pass the senate.

The Thon bill (H. B. 582) provides for the reporting and handling of cases of ophthalmia neonatorum, with the object of preventing blindness from infections at birth. Permits midwives to use prophylactic, but not to treat. Bill framed by leading ophthalmologists of the state. On third reading in the house. Now opposed by Christian Scientists and League for Medical Freedom. Will require strong urging to pass.

The anti-narcotic bill (S. B. 300), introduced in the senate by Senator Boehm. Drafted along lines of the federal law, but materially improving same. Approved by Council of the Chicago Medical Society. Now on third reading in the senate. Must still go to house. Prompt action necessary now to get through in time.

The anti-vending bill (S. B. 84) is being amended to death in the judiciary committee of the senate. Patent medicine vending concerns fighting this measure vigorously. Little hope for it unless medical profession act very vigorously and at once.

The status of bills which do not meet with favor in the profession is as follows:

Optometry bill (H. B. 9), intelligently opposed in judiciary committee by representative physicians of state, was reported out April 26th, when only 4 out of 45 members of committee were present, with recommendation that it do pass. Now on first reading in house. Indications are that immediate and strong efforts are required to defeat this measure on floor of house. Same bill is in license committee in senate (S. B. 30), but no hearings have been announced.

The State Health Department reorganization bills (H. B. 592 and S. B. 240), strongly condemned by the Council of the Chicago Medical Society and by various county medical societies, are still in committee with no hearings announced. It is to this bill that the osteopaths have pinned their faith as affording them an opportunity to secure a separate examining board.

Correspondence

DESERVES A MEDAL.

To the Editor: In our family are "Father and seven sons," all active physicians, practicing our profession in the State of Illinois. Do you know of a record in this state or the U. S. that will beat our record,

Respectfully yours,

H. V. DONOVAN, M. D.

No, we do not know of a record that is within sight of yours. It certainly is a remarkable instance, and, in the words of Harry Lauder, "Ye canna beat it."—Editor.

ANTINARCOTIC LAW RECORD BOOK

The Abbott Alkaloid Company have issued a little book which will be extremely convenient to doctors, druggists and veterinarians for keeping their records in compliance with the Harrison antinarcotic law.

The book contains a digest of the antinarcotic law, directions for recording the purchase of and dispensed narcotics, and about 100 blank pages, ruled in a very convenient form, for the records.

A copy may be had by addressing the Abbott Alkaloid Company, Ravenswood Station, Chicago. Price 25 cents.

AUTO TIRES

"We have succeeded in building an inner tube which outlasts any tire, four tubes outwearing five casings, on the average," says L. C. Rockhill, Manager of the Automobile Tire Department of the Goodyear Tire & Rubber Company, Akron, Ohio. "Our tubes are laminated, that is, they are built up layer on layer. First we roll the rubber into thin sheets so that any flaws can be readily seen, and faulty sheets discarded. These sheets are wrapped together and vulcanized into one solid rubber tube. Tubes built of one piece of rubber often contain flaws which are not detected.

"This year we are making our tubes thicker, averaging 14 per cent heavier than before. Yet, notwithstanding this added thickness, we have lowered our price 20 per cent, which makes the Goodyear Laminated Tube cost about the same as others.

"We have found that car owners using our inner tubes with other makes of tires are often converted to the use of our Goodyear Fortified Tires through the splendid performance of the laminated tubes. Automobileists who are buying more tubes than tires can easily obviate this condition by using Goodyear Laminated Tubes."

Auto Sparks and Kicks

CAUSES OF OVERHEATING.

The reasons for motor overheating can be divided into three general groups: 1, faulty water circulating system; 2, faulty motor condition; 3, improper control of motor.

CASTILE SOAP FOR MOHAIR TOPS.

I have frequently heard persons ask what sort of dressing they should use to remove the spots from the mohair tops of their cars. In answer to these inquiries I think the safest information to give is that castile soap with lukewarm water will generally remove these spots. Many of the users of these tops employ gasoline which dissolves the rubber interlining.

WATCH THE RADIATOR.

Old-type radiators have a habit of becoming clogged and inefficient from slight causes. The tubes or sections may have a deposit of foreign matter, which, while not hindering the flow of water, nevertheless prevents the proper radiation. —*Auto Trade Jour.*

GIRL NOT NEGLIGENT.

That a young girl seven years old, crossing a street at a jog trot, was not guilty of negligence, if she was run down and injured at a place and hour where automobiles might be expected to move at a moderate speed, was recently decided in Massachusetts.

The court held that, as the automobile was moving at from 15-20 miles an hour, and no horn was sounded, it was significant that the motorist was negligent, in view of the close proximity of a school house and the actual presence of children nearby.—*Trips v. Taft*, 106 N. E. 578.

CARBON IN OILS.

A lubricating oil cannot be produced which will not leave some carbon when it is exposed to the high temperatures of an explosion which is between 2,000 and 3,000 degrees, considerably above the flashing point of any oil. For this reason the claims of some concerns that their product is noncarbon are misleading.

OIL SOMETIMES USED TOO LONG.

Among the motor troubles caused by improper lubrication are those due to using the oil too long. Because the gauge indicates there is a sufficient supply in the reservoir many motorists take it for granted that the working parts will be properly lubricated. This is an error, for all oils wear out; that is, its physical and chemical properties undergo a progressive and destructive alteration in service.

NEW MAGNETIC GEAR.

"One of the latest developments in motor car equipment is an electrical apparatus through which the power of the gasoline engine is transmitted to the propeller shaft solely by magnetic force, thus doing away with the necessity for gear shifts, or other mechanical transmission," says *Popular Mechanics Magazine*. "This apparatus differs radically from the ordinary electrical transmission in that only so much of the power of the engine as is required for transmission purposes is converted into electrical force. The apparatus consists of two electrical units, in both of which the armature is fixed to the propeller shaft of the car. In the first, or forward, unit the field is fixed to the engine shaft and revolves with it, while in the second, or rear, unit the field is stationary and is supported on the frame of the car. In the various stages of operation the first unit acts as dynamo, magnetic clutch, and motor, and the second unit as motor and dynamo. The action of these units is controlled through resistance coils."

SKIDDING CAUSES TIRE WEAR.

Skidding, of course, may be due to a number of things, but the chief cause of tire wear from skidding, is due to sudden application of the brakes, especially on country roads. We all know that sand will cut and country roads contain a bit of sand. When the brakes are applied suddenly and the wheels slide, even though it be slightly, the sand cuts into the tread. On city pavements, too, the skidding causes the tires to wear. Friction causes wear and tire skidding on a city pavement is equivalent to rubbing the tire against a rough substance, with the result that the tread will wear rapidly and usually in spots.—*Motor Age*.

ILLINOIS STATE MEDICAL SOCIETY,**SIXTY-FIFTH ANNUAL MEETING,**

Springfield, May 18, 19 and 20, 1915.

OFFICIAL PROGRAM.**OFFICERS.**

Albert L. Brittin, President, Athens.
 Charles W. Lillie, President-Elect, East St. Louis.
 Otto T. Freer, First Vice-President, Chicago.
 Everett J. Brown, Second Vice-President, Decatur.
 Andrew J. Markley, Treasurer, Belvidere.
 Wilbur H. Gilmore, Secretary, Mount Vernon.
 Clyde D. Pence, Editor, Chicago.

THE COUNCIL.

Clyde D. Pence, Chicago, '15.
 Charles D. Center, Quincy, '15.
 Frank C. Sibley, Carmi, '15.
 August H. Arp, Moline, '16.
 Charles S. Nelson, Springfield, '16.
 Charles F. Burkhardt, Effingham, '16.
 Elmer B. Cooley, Danville, '17.
 Emil Windmueller, Woodstock, '17.
 Edwin S. Gillespie, Wenona, '17.

STANDING COMMITTEE.**SCIENTIFIC WORK.**

C. U. Collins, Chairman.....Peoria
 Lawrence Ryan.....Chicago
 A. C. Croftan.....Chicago
 E. W. Fiegenbaum.....Edwardsville
 C. B. Welton.....Peoria
 J. C. Beck.....Chicago
 R. R. Ferguson.....Chicago
 M. W. Snell.....Litchfield
 President and Secretary (Ex-Officio).

PUBLIC POLICY

A. M. Harvey, Chairman.....Chicago
 O. B. Edmonson.....Clinton
 Charles H. Parkes.....Chicago

MEDICAL LEGISLATION.

L. C. Taylor, Chairman.....Springfield
 J. H. Bacon.....Peoria
 N. M. Eberhardt.....Chicago

MEDICAL EDUCATION:

A. M. Corwin, Chairman.....Chicago
 Frank Buckmaster.....Effingham
 Martin M. Ritter.....Chicago

MEDICO-LEGAL.

C. B. King, Chairman.....Chicago

SECRETARIES' CONFERENCE.

H. F. Bennett, President.....Litchfield
 Elizabeth Ball, Vice-President.....Quincy
 C. W. Carter, Secretary.....Clinton

ARRANGEMENTS.

H. C. Blankmeyer, Chairman.....Springfield
 R. L. Bullard.....Springfield
 F. D. Fletcher.....Springfield
 P. L. Taylor.....Springfield
 A. C. Baxter.....Springfield

ORDER OF PROCEEDINGS.

Registration Office in the Exhibit Hall, on the first floor of the Masonic Temple.

First Day—Tuesday Morning.

9:30—Call to order of the Society in General Session by the President, Albert L. Brittin, Athens, in Blue Lodge Room, Masonic Temple.

Report of the Chairman of the Committee on Arrangements. H. C. Blankmeyer, Springfield.

10:00—Call to order of Secretary's Conference, Blue Lodge Room, Masonic Temple, by H. F. Bennett, President, Litchfield.

11:00—Surgical Clinics at St. John's and Springfield Hospitals for the Section on Eye, Ear, Nose and Throat.

First Day—Afternoon.

3:30—Call to order of the House of Delegates, in the Blue Lodge Room of the Masonic Temple, by the President, Albert L. Brittin.

4:00—Call to order of the Section on Eye, Ear Nose and Throat, by the Chairman, C. B. Welton, Peoria. Leland hotel for President's address.

First Day—Evening.

FIRST PRESBYTERIAN CHURCH, SEVENTH AND CAPITOL AVENUE.

8:00—President's Address, Albert L. Brittin, Athens. Oration on Medicine, Prof. E. J. James, President University of Illinois.

Second Day—Wednesday Morning.

9:00—Call to order of Sections 1 and 2, for the reading and discussion of the papers of the program. Commandery Room, third floor of Masonic Temple.

Call to order of the Section on Eye, Ear, Nose and Throat, in the sun parlor of the Leland hotel, by C. B. Welton, Chairman, Peoria.

Call to order of the Section on Public Health and Hygiene, in the Blue Lodge Room, second floor of the Masonic Temple, by R. R. Ferguson, Chairman, Chicago.

12:30—Adjournment for luncheon.

Second Day—Afternoon.

2:00—Oration on Surgery, by Willard Bartlett, St. Louis, Mo.

4:00—Meeting of the Medico-Legal Committee, in Masonic Temple, C. B. King, Chicago, Chairman.

Second Day—Evening.

8:45—Stag Smoker, given by the Sangamon County Medical Society, third floor of the Masonic Temple.

The three-act burlesque, "Twilight Sleep," will be given at this time. Admission will be by ticket only, which must be secured at time of registration.

Third Day—Thursday Morning.

9:00—Call to order of Sections 1 and 2 for the continuation of the program.

12:30—Adjournment for luncheon.

Third Day—Afternoon.

1:30—Reconvening for continuation and completion of program.

4:00—Call to order in General Session by the President to receive the report of the House of Delegates.

Induction of President-Elect.

5:30—Final adjournment.

EYE, EAR, NOSE AND THROAT CLINIC.

The Clinics to be held by the Section on Eye, Ear, Nose and Throat will consist of the following operations and demonstrations:

Tonsil Operations.

Alcohol Injections into Nasal Nerves and Ganglion.

Operations on Lacrymal Sac.

Radical Mastoid with Burr.

Demonstration of the Labyrinth Tests.

Demonstrations of Bronchoscopy and Esophagoscopy.

Demonstration of Suspension of Bronchoscopy and Esophagoscopy.

Alcohol Injections of Spheno-Palatine Ganglion.

Demonstration of Original Procedure for Maintaining Permanent Interoocular Drainage in Glaucoma.

Intraeapsular, or Smith Operation for Cataract. Middle Turbineectomy and Ethmoid Exenteration.

This Section will hold a banquet in the Sun parlor of the Leland hotel, May 18th, at 6 p. m.

ALUMNI BANQUET.

The Alumni banquets will be held as follows: Northwestern, Leland hotel, May 19th, 12:30 p. m.

Rush, St. Nicholas hotel, May 19th, 12:30 p. m.

Jefferson, St. Nicholas hotel, May 18th, 6:00 p. m.

Barnes, St. Nicholas hotel, May 19th, 7:00 p. m.

Washington University, St. Nicholas hotel, May 19th, 12:30 p. m.

St. Louis University, Illinois hotel, May 19th, 12:30 p. m.

P. & S., Chicago, St. Nicholas hotel, May 19th, 7:00 p. m.

M. & S., Chicago, Leland hotel, May 19th, 6:30 p. m.

Michigan, Sangamo club, May 19th, 12:30 p. m.

ENTERTAINMENT FOR LADIES.

Tuesday, May 18, 1915.

4:00 p. m.—Reception and Tea at the Art Institute.

Wednesday, May 19.

10:00 to 12:00 a. m.—Lincoln Pilgrimage and Parks, in automobiles.

4:00 to 6:00 p. m.—Reception by Mrs. Dunne at the Mansion.

8:00 to 11:00 p. m.—Theatre—Chatterton.

OFFICIAL PROGRAM.

SECTION ONE.

A. C. Croftan, Chairman.....Chicago
E. W. Fiegenbaum, Secretary....Edwardsville

SECTION TWO.

C. U. Collins, Chairman.....Peoria
Lawrence Ryan, Secretary.....Chicago

Wednesday, May 19, 9:00 a. m.

Infections of the Hand, George Kreider, Springfield.

Discussion:—Allan B. Kanavel, Chicago.

The Mechanism of Exhaustion, Frank Norbury, Jacksonville.

Discussion:—S. N. Clark, Hospital; R. T. Woodyatt, Chicago.

The Civil Liability of Physicians for Malpractice, John H. Miller, Pana.

Discussion:—G. J. Mautz, Springfield.

The Administration of Antitoxin, E. S. Murphy, Dixon.

Discussion:—H. W. Cheney, Chicago.

Principles Underlying the Treatment of Septic Peritonitis, J. E. Allaben, Rockford.

Discussion:—George DeTarnowsky, Chicago.

Hypopituitarism Not Associated with Tumors of the Pituitary Body, J. F. Percy, Galesburg.

Discussion:—A. H. Dollear, Jacksonville; Dean D. Lewis, Chicago; W. H. Holmes, Chicago; Allan B. Kanavel, Chicago.

Wednesday Afternoon at 2:00.

Oration in Surgery:

A Clinical and Experimental Study of Post-Operative Ventral Hernia, Willard Bartlett, St. Louis, Mo.

Some Anatomical Considerations in Surgery of the Bile Ducts, E. Mammen, Bloomington.

Discussion:—Carl Black, Jacksonville.

The Liver in Gall Stone Disease, Frank Buckmaster, Effingham.

Discussion:—E. P. Sloan, Bloomington.

Traumatism as an Etiological Factor in Pulmonary Tuberculosis, J. W. Pettit, Ottawa.

Discussion:—George T. Palmer, Springfield; M. N. Moyer, Chicago; H. C. Mitchell, Carbonale.

Management of Injuries of the Ankle Joint, John B. Murphy, Chicago.

The Identification and Significance of Certain Types of Cardiac Irregularity. (With lantern slides.) J. F. Churchill, Chicago.

Discussion:—J. B. Herrick, Chicago.

The Painful Manifestations of Myocardial Disease, L. C. Taylor, Springfield.

Discussion:—E. J. Brown, Decatur.

Ten Years' Experience in the Treatment of High Blood Pressure, A. R. Elliot, Chicago.

Discussion:—Frederick Tice, Chicago; T. J. Holke, Freeport.

Thursday, May 20, at 9:00 a. m.

Operative Treatment of Uterine Prolapse, H. T. Byford, Chicago.

Discussion:—Robert T. Gilmore, Chicago.

Radium Injections in Chronic Arthritis, K. F. Snyder, Freeport.

How to Accurately Localize Foreign Bodies in the Chest. The Method of Their Removal. Presentation of Cases. Emil G. Beck, Chicago.

Discussion:—George H. Weber, Peoria.

Comparative X-ray Work, E. M. Sala, Rock Island.

Discussion:—D. N. Eisendrath, Chicago.

Civil War Medicine and After, C. B. Johnson, Champaign.

Discussion:—P. J. H. Farrell, Chicago; Chas. D. Center, Quincy.

The Treatment and Prognosis of Syphilis of the Nervous System, Ralph C. Hamill, Chicago.

Thursday Afternoon at 2:00 p. m.

Etiology and Diagnosis of Brachial Plexus Lesions, George W. Hall, Chicago.

Discussion:—C. Wood, Decatur.

Post-Operative Embolism, S. M. Miller, Peoria.

Discussion:—Robert A. Noble, Bloomington.

Focal Infection a Factor in General Pathological Conditions, with Especial Reference to Infection of the Tonsils, F. Brawley, Chicago.

Discussion:—C. B. Welton, Peoria; W. S. Gailey, Bloomington.

Modern Surgery of the Epididymis, Irvin S. Koll, Chicago.

Supporting Measures of Treatment in the Psychoses, Sanger Brown, Chicago.

A New Method of Securing Bony Ankylosis of the Vertebra in Potts' Disease, Through a Bone Transplant, A. E. Halsted, Chicago.

Discussion:—E. W. Ryerson, Chicago.

SECTION ON EYE, EAR, NOSE AND THROAT.

SUN PARLOR OF LELAND HOTEL.

C. B. Welton, Chairman.....Peoria
Joseph C. Beck, Secretary.....Chicago

Trephining versus Iridectomy in Glaucoma, H. W. Woodruff, Joliet.

Discussion opened by Thomas Faith, Chicago.

The Oculo-bulbar Seton in the Treatment of

Glaucoma. (Illustrated by lantern slides.)
Casey Wood, Chicago.

Discussion opened by G. T. Jordan, Chicago.

Complications of Middle Ear Suppuration,
George E. Shambaugh, Chicago.

Discussion opened by Joseph C. Beck, Chicago.

Sympathetic Ophthalmia. (Lantern slides
and demonstration of case), Robert Blue, Chi-
cago,

Discussion opened by J. Sheldon Clark, Free-
port.

Treatment of Tuberculosis of the Larynx, E.
E. Edmondson, Mt. Vernon.

Discussion opened by H. J. Pollock, Chicago.

Influence of Systemic Infections and Toxemias
on Eye, Ear, Nose and Throat Conditions, H. M.
Starkey, Rockford.

Discussion opened by Frank Brawley, Chicago.

Opening of the Frontal Sinus with Demonstra-
tion of the Operation on the Cadaver, Otto Freer,
Chicago.

Discussion opened by Charles Robertson, Chi-
cago.

Syphilis of Internal Ear, G. H. Mundt, Chi-
cago.

Discussion opened by O. J. Stein, Chicago.

Non-Suppurative Sinus Diseases in Relation to
Eye, J. A. Cavanaugh, Chicago.

Discussion opened by R. J. Tivnen, Chicago.

The Blind Spot, Harry S. Gradle, Chicago.

Discussion opened by G. F. Suker, Chicago.

Further Consideration of the Tonsils as a
Source of Focal Infections, Frank Brawley, Chi-
cago.

Discussion opened by Carroll B. Welton,
Peoria.

Foreign Bodies in the Respiratory Tract, S. A.
Friedberg, Chicago.

Discussion opened by G. W. Boot, Chicago.

Causes for Catching Cold, A. M. Corwin, Chi-
cago.

Discussion opened by A. B. Middleton, Pontiac.

Prophylaxis in Progressive Cataract, J. W.
Dunn, Cairo.

Discussion opened by A. L. Adams, Jackson-
ville.

The Use of Lead and Slippery Elm Plates in
Nasal Surgery, A. E. Prince, Springfield.

Horse Hair Suture for the Relief of Tension
in Glaucoma, J. Whitefield Smith, Bloomington.

Discussion opened by W. O. Nance, Chicago.
The Diagnosis of Ostosclerosis, G. W. Boot,
Chicago.

SECTION ON PUBLIC HEALTH AND HYGIENE.

BLUE LODGE ROOM, SECOND FLOOR, MASONIC
TEMPLE.

R. R. Ferguson, Chairman.....Chicago

M. W. Snell, Secretary.....Litchfield

Recent Practice Relating to City Wastes' Col-
lection and Disposal, Paul Hanson, Engineer
State Water Supply, University of Illinois.

Co-operation in Public Health Work by Ad-
jacent Municipalities, G. H. Ruddiger, Commis-
sioner of Health of La Salle, Peru and Oglesby,
Illinois.

The Making of a Medical Milk Commission, J.
W. Van Derslice, Chicago Medical Society Milk
Commission.

Medical Inspection of Employee on Certified
Farms, Grace H. Campbell, Chicago Medical So-
ciety Milk Commission.

Some Pressing Public Health Needs in Illinois,
C. St. Clair Drake, Secretary Illinois State Board
of Health.

The Doctor's Opportunity to Conserve the
Health of the State, John S. Robison, President
Illinois State Board of Health.

COUNTY SECRETARIES' CONFERENCE.

BLUE LODGE ROOM, SECOND FLOOR MASONIC
TEMPLE.

H. F. Bennett, President.....Litchfield

Elizabeth Ball, Vice-President.....Quincy

C. W. Carter, Secretary.....Clinton

AddressA. L. Brittin, Athens
The Secretary's Job.....

.....E. W. Fiegenbaum, Edwardsville

Some Reflections.....E. W. Weis, Ottawa

The County Society and the A. M. A.....

.....A. R. Craig, Chicago

A Recording System for County Secretaries...

.....T. D. Cantrell, Bloomington

County Medical Society Problems:

(a) In the Big Society.....

.....C. E. Humiston, Chicago

(b) In the Small Society.....

.....W. C. Blaine, Tuscola

Special attention is called to the fact that the
Secretaries' Conference meets at 10:00 a. m., on
Tuesday the first day of the session. This is

made necessary in order to give the afternoon of the first day to the meeting of the House of Delegates.

EXHIBITORS.

Horlick's Malted Milk.

John McIntosh Co., Physicians' Supplies.

Sharp & Smith, Makers and Importers of Surgical and Veterinary Instruments, Hospital Supplies, Elastic Stockings, Artificial Limbs, etc.

Welch Grape Juice Company.

Wm. Meyer & Co., Electrical Supplies.

Armour & Co., Pharmaceutical Products.

Mellin's Food.

Meder Manufacturing Co., Surgical Instruments.

Mudlavia Springs Company.

Lederle Antitoxin Laboratories.

Reed & Carnrick.

W. B. Saunders Medical Book Company.

Taylor Instrument Company.

C. V. Mosby & Co., Medical Books.

Radium Chemical Company.

Abbott Alkaloidal Company.

Truax, Green & Co.

W. D. Allison & Co.

MAY ANNOUNCEMENT.

"STAG" SMOKER.

The entertainment committee earnestly requests you to be present on time at which

"TWILIGHT SLEEP"

will be presented in all its pristine glory by ten of the histrionic members of the Sangamon County Medical Society in a little three-act burlesque, beginning at 8:45 o'clock sharp on Wednesday evening, May 19, on the third floor of the Masonic temple. Admission will positively be by ticket only, which will be given you at the time of registration. The tickets will be limited and no duplicates will be issued under any circumstances. Make sure you have one before leaving the registration booth. In case the play does not please you, leaving the hall will be permitted only between acts. There is no limit on the cigars, however. If the cigars do not suit you, the entertainment committee will furnish you with a pipe.

Your attention is respectfully called to the following schedule of Alumni banquets:

Northwestern, Leland hotel, May 19, 12:30 p. m.

Rush, St. Nick hotel, May 19, 12:30 p. m.

Jefferson, St. Nick hotel, May 18, 6:00 p. m.

Barnes, St. Nick hotel, May 19, 7:00 p. m.

Wash. University, St. Nick hotel, May 19, 12:30 p. m.

St. Louis Univ. Illinois hotel, May 19, 12:30 p. m.

Chi. P. & S., St. Nick hotel, May 19, 7:00 p. m.

Chi. M. & S., Leland hotel, May 19, 6:30 p. m.

Michigan, Sangamo club, May 19, 12:30 p. m.

General, Masonic Temple, May 19, 6:30 p. m.

E. E. N. & Throat, Leland hotel, May 18, 6:30 p. m.

* * *

The reservations committee wishes to be informed of your intentions as soon as possible on account of the possibility of the legislature being in session at the time of the meeting of the state society. Please be explicit in your requests for reservations.

* * *

The registration booth will be located in the northeast corner of the main floor of the Masonic temple. All members are requested to place their names on the register as early as possible. This is imperative.

Address all communications and suggestions to

H. C. BLANKMEYER, M. D., *Chairman*,

Committee on Arrangements,
Springfield, Ill.

Society Proceedings

CLARK COUNTY.

Society met at courthouse, Marshall, Ill., April 8, 1915, at 2 p. m. in annual session.

Members present: Burnside, S. W. Weir, Hall, Wilhoit, Anderson, Houser, Ryerson, Lewis, Duncan, L. J. Weir, Marlow, McCullough, Johnson, Prewett, Mitchell, R. H. Bradley, S. C. Bradley, Hashitt; visitor, Dr. Bert Roan, Berwick, Ill.

Dr. T. H. Lewis presented the subject of the meeting, "Perineal Lacerations," in a systematic paper, giving anatomy of perineum, causes of lacerations or rather the causes why the perineum is not lacerated in all cases of labor, describing lacerations of greater and less degree, recommended in treatment, prophylaxis by retarding progress of head by direct pressure during pains, especially in primiparae, etc.,

and repairing immediately as a rule. Dr. Prewett led the discussion, stating his cases operated on at once gave unsatisfactory results. All members present discussed the subject thoroughly. Some of the doctors hesitated to repair immediately and recommended operation later in a hospital. Most of them, however, do repairing at once and usually get good results, and thus prevent the many female diseases that result in after years from tears in confinement, and it seemed to be the consensus of opinion, after a thorough discussion, that in most cases immediate suturing is the proper thing and in other extensive lacerations and in homes where it is difficult to get proper surroundings the operation should be done later in the home after thorough preparation; that any home can be prepared so that clean, aseptic work may be done; that tears of $\frac{1}{8}$ or $\frac{1}{4}$ inch, not extending far up the vaginal wall, need no sutures and must be expected in most cases in first labor, but lacerations of any considerable degree should always be repaired, and such cases in the past one or two decades are more generally thus relieved of much future trouble and that fewer women are now seen with prolapse of womb, bladder and rectum, with their trains of symptoms and suffering.

Officers for the ensuing year were elected as follows: President, P. P. Haslitt; vice-president, S. W. Weir; secretary-treasurer, L. J. Weir; delegate, L. A. Burnside; alternate delegate, P. P. Haslitt; censors, R. H. Bradley, R. A. Mitchell and L. H. Johnson; legislative committee, S. C. Bradley.

The annual reports of the secretary and treasurer were read. Scientific meetings during the year, 8; minimum attendance, 9; maximum attendance, 12; average attendance, 11.

Program for ensuing year was presented by the committee and adopted as follows:

PROGRAM OF THE CLARK COUNTY MEDICAL SOCIETY,
MAY 13, 1915, TO APRIL, 1916.

May 13, 1915—"Materia Medica and Therapeutics," Dr. C. D. Ryerson. Discussion by all members.

June 10, 1915—"Urinary Analysis in Nephritis," Dr. G. B. R. Williams. Discussion led by Dr. L. A. Burnside.

July 8, 1915—"Diarrheas in Children," Dr. L. H. Johnson. Discussion led by J. L. McCullough.

August 12, 1915—"Fish Fry," Dr. L. A. Burnside presiding. Discussion led by Dr. Joseph Hall.

September 9, 1915—"What to Do in the Accidents of Labor," Dr. S. W. Weir. Discussion led by Dr. P. P. Haslitt.

October 14, 1915—"Thyroid Disease," Dr. S. C. Bradley. Discussion led by Dr. L. J. Weir.

December 9, 1915—"Business Affairs of the Profession," Chapter II, Section 3 of By-laws, Dr. I. L. Firbaugh. Discussion led by Dr. J. W. Marlow.

February, 1916—"Internal Secretions," Dr. R. A. Mitchell. Discussion led by Dr. C. D. Ryerson.

April, 1916—"Suggestive Therapeutics," Dr. W. M. Rogers. Discussion led by Dr. G. T. Rowland.

The following was unanimously adopted:

WHEREAS, The opticians are trying again to get legal recognition to practice medicine in one of its important branches without studying anatomy, diseases or medicines; therefore, be it

Resolved, By the Clark County Medical Society, that we protest and oppose House Bill No. 9 and Senate Bill No. 30, and all the other like bills to admit any one class of persons into the profession through any other door than the usual one.

Resolved, That a copy of these resolutions be sent to Hon. John A. Moore, Wethersfield, Ill., member of the Judiciary Committee of the House from this district, Representatives C. A. Purdunn, Harry W. Drake and Walter E. Green and Senator John R. Hamilton.

The retiring president thanked the society for support of all the members the past year and wished the society even more success in the coming year.

Society adjourned.

L. J. WEIR, Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY.

Regular Meeting, March 31, 1915.

A regular meeting was held March 31, 1915, with the president, Dr. James A. Clark, in the chair.

THE GIBSON LAW IN PNEUMONIA.

Dr. Frederick Tice stated that one of the important problems in the study of pneumonia was that associated with the causative factors of cardiac failure. With a few exceptions, it was formerly quite generally accepted that the myocardium was at fault, until Romberg and his associates investigated the problem experimentally and arrived at the conclusion that the circulatory failure invariably followed an exhaustion or paralysis of the vasomotor center in the medulla. Newburgh and Minot, in their clinical study of pneumonia, among other findings, arrived at the conclusion that the blood pressure curve did not suggest a failure of the vasomotor center. This conclusion had been amply confirmed experimentally by W. T. Porter, L. H. Newburgh and I. Newburgh. These authors were able to demonstrate that the vasomotor center was not impaired in fatal pneumonia. Even more convincing were the microscopic findings of Willson as determined in the fatal pneumonias. In every instance Willson was able to detect myocardial changes due either to a toxemia or to a local infection. On the experimental findings of Romberg and his associates, G. A. Gibson formulated a statement in reference to the relation of the blood pressure to the pulse rate, known as the Gibson rule, which was as follows: "When the arterial pressure, expressed in mm. Hg. does not fall below the pulse rate, expressed in beats per minute, the fact may be taken as of excellent augury, while the converse is equally true. From the work of the last few years in my own wards no fact is more certain than this."

Dr. Tice said that during the past few months a careful clinical study of the application of this rule had been made of the cases of pneumonia admitted

to Ward 8, Medical Service at the Cook County Hospital. In each instance a careful record was made of the pulse, temperature and respiration rate every four hours. The systolic blood pressure, by the auscultatory method, was determined at least every 12 hours. From these records a chart was made showing the pulse rate and blood pressure curves. The temperature curve as well as the time and amount of digitalis administered was also included. The number of pneumonias so charted included 22 cases, which were divided into two groups according to the relative position of the blood pressure above or below the pulse rate. In the first group of 13 cases, ten, or 76.9 per cent., complied with the rule, while in the second group of 9 cases, five, or 55.5 per cent., were positive. Of the total of the two groups, twenty-two cases, 15, or 68.1 per cent., verified the observations of Gibson. A reasonable explanation of the three discrepancies in the first group was to be found in the presence of a nephritis in two and a myocarditis and obesity in the third.

In the second group, of the four deviations from the rule, two patients recovered, both of whom were comparatively young, with soft, elastic vessels, in which presumably a relatively lower pressure existed before the onset of the pneumonia, or, at least, were able to withstand a greater depression of the circulation. Excluding the five cases in which a reasonable exception existed, of the remaining 17 only two failed to comply with the rule. Aside from the prognostic significance of the blood pressure and pulse ratio, it had been of the greatest assistance and satisfaction as a guide to the administration of cardiac stimulants. In some no stimulation was used, while in others one or two intravenous injections were sufficient to reduce the pulse rate, increase the blood pressure and produce a crossing of the curves.

The author concluded: 1, That as a means of prognosis, the Gibson rule was verified in 88.2 per cent. of the cases; and 2, as a guide in the treatment, it was of the greatest assistance.

THE DETERMINATION AND IMPORTANCE OF DIASTOLIC PRESSURE.

Dr. Louis M. Warfield, Milwaukee, Wisconsin, said that too little attention had been paid to the determination of diastolic and pulse pressure. Blood pressure estimations should register three values: The height of the systolic; the height of the diastolic, and the difference between the two, the pulse pressure. This he had called the pressure picture. Any report which did not register the three figures was incomplete and might lead to fallacious conclusions.

When the auscultatory method was employed to measure blood pressure, all observers were now agreed that the very first sound heard through the stethoscope when the air was gradually released around a compressed brachial artery was the point where the systolic pressure should be read. When the systolic pressure was high or the pulse wave very large a dull sound might be heard as soon as the pressure in the cuff exceeded maximum pressure. With ordinary

attention this should not be confused with the click sound which was produced by the first pulse wave to pass under the cuff as the pressure was reduced. The cause of the pseudo first sound was the transmission of the beat against the upper part of the cuff through the air under pressure in the cuff to the arm upon which the bell of the stethoscope was placed.

A study of his records for the past three years led him to believe that he could formulate a few working generalizations. Further than this he did not seem justified in going at this time: The diastolic pressure for any individual was more constant than the systolic. As it measured the peripheral resistance it would seem to be a more accurate index of high or of low tension than the systolic pressure.

The pulse pressure, which represented the actual head of pressure forcing the blood to the periphery, could be obtained only by measuring both the systolic and diastolic pressures. It was, therefore, of the greatest importance to be able to measure accurately the diastolic pressure.

Gradually rising diastolic pressure was of more significance than high systolic pressure. Large pulse pressures were essential for the compensation of hypertension cases. Decreasing pulse pressure in such cases was a sign of failing heart. Attempts by any means to reduce hypertension without proportional reduction of the diastolic pressure might be productive of great harm. Any pulse pressure below 30 mm. Hg. must be regarded as low, above 50 mm. Hg. as high.

The diastolic pressure should be taken by the auscultatory method at the sudden transition from the loud third tone to the dull fourth tone. In many cases the fifth phase or disappearance of all sounds so closely followed the fourth phase that practically the diastolic could be taken at that point.

No accurate observations of either systolic or diastolic pressures could be made upon decompensating hearts.

Dr. J. W. Fisher, medical director, Northwestern Mutual Life Insurance Company, Milwaukee, Wisconsin, then read a paper on "Blood Pressure in Life Insurance," which appears on page 366.

SOME FACTORS INFLUENCING BLOOD PRESSURE.

Dr. Joseph L. Miller stated that, at least eighty per cent. of the cases of high blood pressure—200 mm. or more—showed in the urine definite evidences of renal involvement. As practitioners became more thoroughly versed in the histopathology of the kidney, it might be found that lowered degrees of blood pressure were due to changes in the kidney of less marked degree that had been overlooked in the past.

In regard to the protein diet, it had been customary for years to give patients with high blood pressure a low protein diet, regardless of whether they had evidences in the urine of renal involvement or not; but in spite of the belief that there was impairment of elimination through the kidneys, it was found that patients with high blood pressure and with moderate

renal involvement got rid of phenolphthalein in the normal manner, and that these patients had no more non-protein nitrogen in the blood than normal individuals. The retention of nitrogen in the blood did not have any influence in raising blood pressure in such cases.

As to fluid intake, it had been shown experimentally that the idea that an increased amount of fluid raised blood pressure was without foundation.

With reference to altitude, numerous observations had shown that there was practically no danger to patients, with a high blood pressure, going to high altitudes. Blood pressure in students just before an examination had been known to rise from ten to twenty mm., when compared with readings taken at intervals before and after examinations.

There was a great deal of evidence to show that worry or mental strain had a decided effect in producing temporary changes in blood pressure; but whether these changes had anything to do with a permanent increase in blood pressure was a different question.

Effects of smoking on blood pressure varied greatly in different individuals.

If a patient was given an anesthetic without appreciable cyanosis, it was much less liable to affect blood pressure than if the anesthetic was pushed to a point to cause cyanosis. When the anesthetic was pushed to a certain point blood pressure would show a marked rise.

There was abundant evidence to show that digitalis given by mouth did not increase blood pressure. At the County Hospital he had used strophanthin intravenously in numerous cases of broken compensations, and the best results had been obtained in such cases associated with high blood pressure.

DISCUSSION.

Dr. B. M. Linnell had tabulated 150 cases in which he had taken the systolic and diastolic pressures, both by palpation and the auscultatory method. The average systolic pressure was 120.5 and the diastolic 83, making a pulse pressure of 37.3. These were supposed to be normal readings. Among these and also abnormal readings, which amounted to something like 160, there were only seven cases in which albumin appeared. There were something like 25 cases of hypertension. There were one or two observations made of hypertension which occurred with mitral stenosis and tubercular conditions, but there were some cases in which he could not determine what caused the lowered blood pressure. One man, a dentist, 35 years of age, had a systolic pressure of 80. He observed him daily for a week at different hours and the pressure was always at that point. He could find no explanation for the low tension. He found a number of cases of high tension with high diastolic pressure.

Indigestion, toxemia, or autointoxication had more to do with hypertension than was formerly supposed. Cases of nephritis were seen without increase in blood pressure, either diastolic or systolic, but if those patients had intestinal or stomachic indigestion they were apt to have hypertension. Systolic pressure was a most important factor. Practitioners had not reached the point where they could say any other factor was more important. Furthermore, rapidity of the pulse was a most important factor in the pulse beat. There were other considerations that had to be worked out, but rapidity of the pulse was the thing upon which the practitioner depended for any disorder with the heart.

Dr. Arthur R. Elliott emphasized the influence that might

discount somewhat the working of Gibson's law by the antecedent condition of blood pressure in any given patient. If an individual before an attack of pneumonia had a high blood pressure, it would be seen at once that this would throw out the pulse pressure ratio according to the strict working of Gibson's law. The pulse rate ratio might be satisfactory, and yet the patient might die of heart failure because pressure was higher than the average normally and, had been for some time. On the other hand, in certain young individuals, with lowered vasomotor tone, a state of constitutional hypotension might exist before pneumonia that would give rise at the other end to a disturbance of pulse pressure ratio, and such an individual might recover, although pulse pressure ratio would show a bad prognosis and impending heart failure. The working of Gibson's law was presumably more reliable in young individuals than in old ones, because in many individuals beyond middle age disturbances of blood pressure were common.

He congratulated Dr. Warfield upon the success of his method of determining diastolic pressure and on his insistence upon the prognostic value of a high diastolic pressure. The profession was coming to realize clinically that diastolic pressure was of more value from a prognostic standpoint than systolic pressure. The old method of predicating a bad outlook upon a high systolic pressure had been shown by experience in many cases to be an error, but it was not so with diastolic pressure. A diastolic pressure constantly above 100, 110 or 120 or beyond presaged a bad outcome for cases. Many patients with a diastolic pressure of over 120 sooner or later died of cerebral apoplexy.

In his office the other day a man had a systolic pressure of 175. The next observation, made some days later, showed it to be 125. He had made two observations since then and the systolic pressure was 120. He thought it would be an obvious injustice to eliminate such a man from the insurable class by taking only one blood pressure reading. He asked Dr. Fisher whether he insisted on more than one blood pressure reading, thereby eliminating the neurogenic factor, the factors of resistance and of apprehension which attended the preliminary examination.

Dr. H. P. Woley heartily endorsed the remarks of Dr. Fisher and emphasized the point that at any age a constant high blood pressure of 150 or over was pathologic. There was a vast amount of good being unintentionally accomplished every day owing to the fact that life insurance companies were systematically taking blood pressures. For instance, in the loop district physicians were getting hold of a class of cases they could not get in any other way, and were they allowed to go untreated they would develop pathologic conditions. A large percentage of the well-to-do men in the loop district who were well fed, rode in their automobiles, took little or no exercise, and ate three or four times a day, when they presented themselves for insurance were found to have blood pressures from 155 to 165 and 170, and were beld up on this account for further study and observation. By immediately cutting down their diet, urging them to exercise, cutting out alcoholics, going to bed early, etc., he had found their blood pressure would fall in a short time. Blood pressure would fall because there were as yet no serious pathologic changes in the tissues. Such men suffered from chronic arterial spasm due to their mode of life, to the constant ingestion of food, and constant tension of the body, and just as soon as they were relieved by proper treatment, blood pressure fell and they became good risks.

Dr. Robert H. Babcock said that if a physician were to take blood pressure readings during the first 24 hours of a pneumonia case he would hardly be misled in his interpretation of the figures, since few patients with pneumonia were in serious danger inside of the first 24 hours, and it seemed to him the blood pressure readings would hardly vary much during that time from what they were prior to the onset of the illness. A physician would be able to determine whether or not the patient had a hyperarterial tension previously or a hypoarterial tension previously.

Some years ago in a paper he read before the society on the treatment of pneumonia he called attention to Gibson's

law, and his experience since then had led him to appreciate the value of this law both prognostically and therapeutically.

Those who had had experience were in hearty accord with the view expressed by Dr. Warfield, that is, it was the pulse pressure which should be carefully noted. Strict attention should be given to the diastolic or minimum pressure.

Dr. William S. Sadler referred to auto-intoxication and chronic constipation, and said he formerly thought they were largely associated with high blood pressure, but in 20 per cent of his cases of obstinate chronic constipation the patients had a low blood pressure.

In cases of high tension and blood pressure the neutral bath would lower pressure by dilating the vessels of the skin and quieting the heart. Furthermore, the cold bath, on account of the great reaction which followed it, would lower blood pressure. On the other hand, warm baths should be kept up for a number of minutes to lower the blood pressure, and the neutral bath from fifteen to forty minutes. Cold baths, however, must be short to lower blood pressure. If the skin was kept warm it would assist materially in lowering blood pressure. Hot fomentations would greatly dilate the blood vessels of the skin and tend to relieve the blood tension.

Dr. Warfield, in answering Dr. Elliott, said that after a fairly large experience at the Milwaukee County Hospital, in following cases to autopsy and examining specimens microscopically, he did not believe he had ever seen a case with a high blood pressure picture without very definite chronic diffuse nephritis in which a large part or the whole kidney was involved.

Dr. Fisher, in replying to Dr. Elliott, said they did not decline a case for insurance on one high blood pressure reading; that they obtained as many readings as possible. If there was one high reading, and they got a low reading at a different time of the day, followed by one or two low readings taken at the same time as they got high readings, they paid no attention to the high reading. In their work they were trying to determine whether there was any value in diastolic pressure and this work pertained only to applicants that applied for life insurance.

In answer to a question as to what importance could be attached to a low pressure of 100 or 110, Dr. Fisher replied that they had examined a large number of cases for low blood pressure and found the lowest was 90. These cases had been tabulated, and so far they had not found a high mortality. Only a very small per cent of such cases had been declined on account of low pressure. A person with a low blood pressure, with a history of tuberculosis, would be declined.

Regular Meeting, April 7, 1915.

1. Myoma and Pregnancy, Henry F. Lewis.
2. Immediate Open Repair of Essential Structures of the Pelvic Floor (Lantern Slides), Channing W. Barrett.
3. Late Repair of Perineal Lacerations (Lantern Slides), Albert Goldspohn.

Discussion—Carey Culbertson, Rachelle Yarros, E. C. Dudley.

Regular Meeting, April 14, 1915.

1. Artificial Pneumothorax in the Treatment of Pulmonary Tuberculosis. Some of Its Problems. Theodore B. Sachs.
2. What Constitutes a Proper Carbohydrate and Protein Diet in the Treatment of the Tuberculous? John Ritter.
3. The Early Diagnosis of Pulmonary Tuberculosis, Robert H. Babcock.

Discussion—W. A. Gekler, Clarence Wheaton, J. F. Hultgen, Ethan A. Gray, Clarence Leigh.

Regular Meeting, April 21, 1915.

1. A Plea for the Earlier Diagnosis and Operation in Skull Fracture. Analysis of 1,138 Cases. Kellogg Speed.

Discussion—E. S. Blaine, W. W. Bissell.

2. A New Method of Securing Bony Ankylosis of the Vertebrae in Pott's Disease by Means of a Bone Transplant.

3. Fractures of the Bones of the Extremities. (Lantern slide demonstration.) Wm. Hessert.

Discussion—Chas. Davison, Wm. E. Schroeder.

CHICAGO LARYNGOLOGICAL AND OTOLOGICAL SOCIETY.

Regular meeting, held December 22, 1914, with the president, Dr. Otto J. Stein, in the chair.

PROBABLE SYPHILITIC ULCERATION OF LEFT TONSIL.

Dr. W. G. Hatch, Rockford, in presenting this case, said that the family history was absolutely negative. About six months ago the patient complained of trouble with the throat, accompanied by swelling, at which time the speaker first saw him. There was then a very large ulceration of the left tonsil present. The glands were very hard and indurated on both sides. He did not feel that the case was operative, and felt sure that it was malignant. He did not want to make a section, because he did not wish to subject the patient to the dangers of metastatic infection. He did not have a Wassermann made, because his experience with this test has not been particularly happy. He put the patient on treatment with iodides, and the condition commenced to clear up. The glands are getting smaller and the ulcers seem to be healing. The speaker was inclined to think the condition was due to syphilis.

DISCUSSION.

Dr. Norval H. Pierce believes all such cases as the one presented should be subjected to microscopic examination immediately. The danger of opening up the lymphatics by operating to take out a piece of such tissue is very slight. We can seal over the wound with the cautery to obviate any danger that the doctor who reported the case seemed to believe exists. There are several things that come into thought at this point, as to whether it can be carcinoma or actinomycosis or syphilis—even tuberculosis, although of course it does not have that appearance. Yet tuberculosis in exceptional instances may so very closely simulate carcinoma that the differential diagnosis can only be made by microscopic examination. If the diagnosis of syphilis is made positively, then one is apt to be a little more heroic in treatment.

CARCINOMA OF UPPER JAW, WITH RESECTION.

Dr. Joseph C. Beck showed a patient who had had a carcinoma of the left upper jaw, which the speaker diagnosed by microscopical examination. It extended somewhat on the anterior surface of the superior maxilla when seen, as the condition had lasted for eight months. He wished especially to refer to the operation in this case, particularly the technic. A resection of the upper jaw without

external incision was made, as in an antrum operation. He excised the inner surface of the cheek wide of the tumor. Then, internally, in the midline, below the upper lip, just under the nose, raising a flap as in the Loewy operation, he resected the superior maxilla posteriorly, including the palatal bone. It was not necessary in this case to remove the lateral wall of the nose, or the floor of the orbit, because they were not involved. The carotid artery was not ligated at the beginning of the operation, but on account of a good deal of bleeding a temporary compression, according to the Crile method, was performed, which resulted in practically no bleeding during the remainder of the operation. After the operation was completed, small particles of the tissue from the operative field were excised and saved for microscopical examination. This tissue was found subsequently absolutely free from carcinoma. Then a layer of gauze was placed within the cavity, and on top of that ten milligrams of radium element, some more gauze, and the soft palate sutured temporarily to the side of the cheek to control bleeding. The radium was allowed to remain in for forty-eight hours. The gauze was removed next day and replaced three times within a week, and then left out. Since then the sloughs have been coming away, and there is still a portion of the slough left in the anterior wall. It is now four weeks since operation, and the patient was shown because he was leaving for his home next week. Perhaps it would be of interest to see him sometime in the future with no recurrence.

In this connection, Dr. Beck showed a stereoscopic photograph of a patient operated on seven years ago by the external method, and the patient is alive and in good health at the present time. The operation, however, leaves quite a different face from what the patient just exhibited has. Dr. Beck believes that, as a rule, the internal operation can be very nicely done in these cases. He employed the burr almost exclusively in the removal of the bone, and it was very easy to manipulate. Dr. Beck expects to have a prosthesis made with an artificial denture attached, but this must not be worn until all post-operative reaction has disappeared.

TUBERCULOSIS OF PHARYNX AND SOFT PALATE.

Dr. J. Holinger presented two cases. The first patient came to Alexian Brothers' Hospital complaining of indefinite throat trouble. On examination, there was an area just in front of the right tonsil, about the size of a quarter, swollen, and of irregular surface. Pieces were removed for examination, which showed nothing indicative of syphilis or carcinoma. The process progressed very fast, and in about two weeks the whole half of the soft palate was involved, in another week the whole of the soft palate and a part of the hard palate. The uvula was eaten out in characteristic

manner. Pieces removed at this time for examination showed typical tubercles. At the same time word came from Dr. Rettig, the internist, that the lungs had rales all over. In the sputum tubercle bacilli were found. The man at that time looked very robust and healthy, which appearance he has lost. The whole soft palate, pharynx and epiglottis are eaten out by the tubercular process. It extends up into the nasopharynx and down into the larynx and esophagus, as far as we can see. Other isolated foci are on the inside of the lower lip. This is not by any means a frequent condition. In the *Centralblatt für Laryngologie* this year there have been four or five cases mentioned of tuberculosis of the pharynx, all of them developing very slowly, not progressing in many months as far as this one had in weeks.

RHINOSCLEROMA.

This patient came to Alexian Brothers' Hospital with both nostrils absolutely closed. Dr. Holinger could not make the slightest impression with the probe on either the turbinates or septum. The septum was equally swollen on both sides, as were the turbinates. The cocaine did not shrink the swellings. The speaker forced some packs of cotton with mercury salve into the nose, repeating that every day for many weeks, and with this treatment the swelling of the septum and turbinates went down some, and at the present time the nose is comparatively free. Several large pieces were cut from the septum, but unfortunately were stained wrongly, and the speaker would have to wait for a few days longer before getting a report. If, as the speaker thinks, it is a case of rhinoscleroma, it can be only the beginning, because the trouble only dates back to last summer. The patient is from Ruthenia. The geography is, as the members knew, of importance in rhinoscleroma.

DISCUSSION.

Dr. S. A. Friedberg asked Dr. Holinger if there was anything characteristic on palpation of the nose in the case of supposed rhinoscleroma, to which Dr. Holinger replied that the nose was rigid and could not be compressed at all.

Dr. Friedberg said he had so far seen three cases of rhinoscleroma at the County Hospital, and at the present time has one under observation that has been in the hospital for a couple of years. One case which he recalled had practically the same characteristics as the one presented by Dr. Holinger. The case to which Dr. Friedberg referred had a combined nasal and laryngeal involvement. The larynx showed the typical subglottic swelling. It was necessary to perform a tracheotomy and the man wore a tube for over a year. After the tracheotomy tube was removed, an intubation tube was worn for a short time. At present the patient is without any tube, and is getting along nicely. The scars can still be seen in the larynx, but there does not seem to be any progression.

Regarding the bacteriological findings in these cases, we know that we have an encapsulated bacillus resembling the Friedlander bacillus to a great extent, and for that reason some doubt has been cast on the fact as to whether this is the absolute etiological factor. The speaker thinks more is to be demonstrated from the sections. If both the nose and larynx are involved, it is usually easy to make the

diagnosis in a good many of the cases. It would be interesting to see what the specimens would show.

Dr. George W. Boot, referring to the first case shown by Dr. Holinger of tuberculosis of the pharynx, said that not long ago he saw a woman with what he believed was tuberculosis of the pharynx. She gave a history of having had trouble for twenty years, which had been diagnosed as syphilis at various times, but treatment along anti-syphilitic lines did no good. The speaker considered the case one of tuberculosis of the pharynx and ordered very small doses of tuberculin once a week. At the end of about two months the throat is feeling better than for a long time and looking better. The process has healed over, with the exception of a small ulcer on the right side. She has gained many pounds in flesh under this treatment. The Wassermann was negative.

EXHIBITION OF SPECIMENS

Dr. George W. Boot exhibited, first, a specimen from a carcinoma of the throat involving the esophagus, left side of the pharynx and left side of larynx.

Second, larynx from a case of military tuberculosis. This patient, a man, came to Cook County Hospital suffering from a severe laryngitis, so that the speaker could not get a satisfactory view of the larynx. He did not return to the hospital for three or four days, and in the meantime the man had died. At the last he had a great deal of dyspnea, so that the internes did a tracheotomy, rather high, cutting off the cricoid cartilage. At the post-mortem there was found tuberculosis of the lungs and larynx. There was a shallow ulcer on the epiglottis, and below the vocal cords there was an ulcer on either side, with quite a number of miliary tubercles.

CASE OF BONY TUMOR FILLING NASOPHARYNX, WITH EXHIBITION OF PHOTOGRAPH.

Dr. L. W. Dean showed a photograph of a bony tumor that completely filled the naso-pharynx. The soft palate was not involved, but it was pressed downward and forward, so that the tumor could be seen in the naso-pharynx. The tumor could be felt as a hard bony mass. Entrance could not be made into the naso-pharynx, in order to tell just where the tumor grew from.

Operation: Tracheotomy; anterior posterior incision in the mid-line of the roof of the mouth, severing the soft tissues down to the bone, and the soft palate to the tip of the uvula. These tissues were retracted laterally and the posterior third of the hard palate removed. The growth was found growing from the upper surface of the hard palate and from the posterior surface of the vomer. The palatal wound was closed by Brophy's method of closing posterior cleft palate. The closure was complete. Speech perfect.

The microscopical diagnosis was osteoma. Six months later there was no recurrence.

DISCUSSION.

Dr. Otto J. Stein asked how hard the bone was?

Dr. Dean replied that it was not ivory-like; it was a crackling affair.

Dr. Stein asked if the nose was involved, to which Dr. Dean replied, not at all.

Dr. Stein said that, as a rule, osteomata of the nose are extremely hard.

SURGICAL ANATOMY OF TEMPORAL BONE, WITH LANTERN DEMONSTRATION.

Dr. George E. Shambaugh stated that every otologist of today aims to be an aural surgeon. During the earlier days of the specialty of otology the complications resulting from mastoiditis were usually taken care of by a general surgeon. This state of affairs has largely disappeared in this country, and there are very few first class general surgeons who are still willing to undertake the special surgery of the ear. Some of the general surgeons who have not kept in touch with the advances of modern otology are still unaware that the type of operation which the specialists are able to do for the cure of chronic, as well as acute, mastoiditis is something quite different from what the general surgeon is prepared to undertake. In England it is still not uncommon for some general surgeons to do mastoid work; indeed, some valuable contributions to the surgery of the mastoid have been made by general surgeons in England, who have devoted a good deal of their energy to the question of mastoid surgery. In Germany it seems that mastoid surgery has been taken over entirely by the aural surgeons, although as late as fifteen or twenty years ago the general surgeons still did a large amount of the mastoid surgery.

Everywhere at present we have come to realize that the complications which arise from suppurations of the middle ear, including mastoid disease, labyrinth infection, and the intracranial complications, are taken care of more efficiently by the aural surgeon than by men engaged in general surgery. This means, of course, that the specialist in otology must master the details of the regional anatomy of the ear, in order to do this work properly.

As a matter of fact, there is only a small proportion of ear cases where surgical interference is necessary, and yet every otologist feels, and rightly so, that he should be prepared to take care of those complications which develop in the course of suppurative middle ear disease. In order to be prepared to do this work the aurist must be trained not only to handle a chisel in a dexterous way, and to ligate vessels, but it is absolutely necessary that he should master the regional anatomy of the ear. This is not such an easy thing to do, as many of the men in the audience could testify. The conditions presented by pathological changes in the mastoid make it necessary for one to have a perfectly clear mental picture of the various relations, if one is to operate without injuring important anatomical structures. Surgical anatomy of the ear can never be acquired from text-books or descriptions. One might read all of the descriptions written on the anatomy of the

ear and study all of the drawings that have been made of this region and yet, if he has not actually handled anatomical preparations showing the relations he will find himself very inadequately prepared when attempting to operate on the ear. The method usually employed in gaining this anatomical knowledge is by beginning to do the operations on the cadaver. This, however, is not the best way to acquire a mental picture of the anatomical relations of the mastoid, for the reason that most of the relations are destroyed while attempting to expose this or that structure. One may operate upon a great many different temporal bones in this way and still have a very hazy idea of the relations of the various structures. The best way of acquiring a mental picture of the anatomy of the ear is by studying sections made through the temporal bone, each section devised so as to bring out clearly certain definite relations. Sections made at random through the temporal bone will be of very little assistance. The speaker recalled looking over, a few years ago, a series of sections made in this way. He was surprised to see how few of the sections brought out relations which were of any practical value. The variety of preparations which one can make of the temporal bone is very great. The speaker spent a great deal of time several years ago in working out a set of preparations, each devised so as to bring out certain definite relations. In all he made something over fifty different preparations. In the lantern demonstration which was to follow he would show some of these preparations.

In closing his introductory remarks, the speaker called attention to the accidents which the general surgeons have so frequently had when operating on the ear; accidents which the carefully prepared aural surgeon very rarely has. An injury to the facial nerve by an aural surgeon is now extremely rare. It is the impression of the speaker that the amount of aural surgery done today is less than what was done fifteen or twenty years ago. He attributes two reasons for this: First, that the suppurative diseases of the middle ear are better taken care of now, since the public recognizes the danger in running ears; the other reason is that the aurists are able to distinguish much more definitely among the cases of chronic suppurative middle ear trouble those where the danger of a complication is imminent, and those where the danger is very remote. The percentage of cases where in chronic, purulent otitis media an operation is indicated is relatively small. There was a time, after the danger from chronic running ears became recognized, and when the differentiation was still hazy between cases which were likely to have complications and those which were not, that otologists were operating on a good many of the non-dangerous type. This period has now passed, and a careful examination of the ear readily distinguishes, as a rule, between cases which require a radical mastoid and the more common

type of chronic running ears where nothing more than the local treatment need be carried out.

HAMMOND'S MASTOID SKIN GRAFTING— A PRELIMINARY REPORT.

Dr. Frank Allport said that among the chief objections to the radical mastoid operation are, 1, the tedious healing and painful dressings; 2, the not infrequent incomplete bone covering, constituting uncured cases; 3, the thin and poorly nourished epithelium often present after cases are really cured, frequently occasioning the deposit of scabs, pus, etc., in the concavities of the large bone opening, necessitating indefinite treatment and care; 4, the non-closure of the tympanic opening of the Eustachian tube, rendering possible more or less dripping from the meatus, thus producing unsatisfactory results, and 5, depreciated hearing, owing to the formation of thick cicatricial tissue over the oval window. However, these things can be usually avoided if proper skin grafting is employed, according to the advocates of the procedure. We cannot deny that any or all of these misfortunes may occur, but whether they can be avoided by skin grafting or not is another question. Whatever its merits may be, after radical mastoid operations, the assertion can be safely made that it is used by only a small percentage of operators. Many of those who condemn skin grafting have never used it, and are contented to abide by the decision of skilful operators, who oppose it, or who at least have good results without it, and who, therefore, see no reason to lengthen their operations by a tedious, puttering and sometimes unsatisfactory process. Many have tried the procedure, and have failed the first time, and been disappointed. A few failures must be experienced before success will be attained. Fortunately, failures in skin grafting do not mean real operative failures, because if the graft does not live the operator can go right on treating the case just as if the grafts had never been placed. It is, therefore, perfectly safe to at least give the procedure a thorough trial.

The chaotic condition of this subject is perhaps responsible for the insecurity of its position, as apparently no two men operate the same way. Some graft immediately after the radical mastoid operation, while others perform secondary grafting, from six to ten days following operation. This operative distinction is not a mere notion—it is a principle, as those who do secondary grafting do so because they do not believe grafts can be depended upon to grow upon newly cut bone. Some operators believe that grafts grow best on thoroughly smoothed bone, where graft and bone surface come in perfect apposition, while others feel that smoothed bone has temporarily lost its highest vitality and does not furnish the best soil for transplanted skin. Some operators use large grafts and others use small ones. Large grafts, however, are practically used by all surgeons when

the skin is inserted into a retroauricular wound, small grafts being reserved for those cases where the transplantation is performed through the meatus, when time has shown that complete dermatization of the cavity should not be expected. Some operators systematically graft through the meatus, about ten days after the mastoid operation, and under these circumstances, of course, only small grafts can be used.

It would thus be seen that there is a wide diversity of opinion concerning the methods of grafting after mastoid operations, and further differences of views become still further apparent when the varying steps of the operations are considered.

There can be no question that grafting large grafts immediately after the radical mastoid operation is the ideal procedure, if grafting is done at all; the only question to be settled is whether such grafts usually live, and whether the process is assured and quickened thereby. The operation is not difficult, after a little experience, and it is certainly better for all concerned than any kind of secondary grafting, provided it can be shown to be successful. There are two principal objections to primary grafting, however, namely: 1. Skin does not adhere well to bare bone, and little patches of granulations should be present if life to the graft is to be confidently expected. 2. When *all* necrosed bone is not removed at the mastoid operation, such centers of disease may create considerable disturbance to bone and meninges, if immediately covered over by grafted tissue. The second objection seemed to the essayist quite insignificant, but the first seemed more noteworthy, and yet we have the evidence of such men as Dench, Hammond, Welty and others to the effect that they are increasingly satisfied with primary skin grafting.

The author emphasized the following points to be observed in primary skin grafting: 1. Remove all necrosis and make the cavity as smooth as possible; 2, remove all possible soft tissue from the inner wall of the tympanic cavity. 3. Thoroughly curette the Eustachian tube as far as the isthmus and rim out its tympanic orifice. 4. Stop all bleeding and oozing by forceps, pressure, firm packing, peroxide of hydrogen, hot water, hot one per cent. solution of the chloride of calcium, adrenalin, "patient waiting," etc. Neglect of this direction will spell failure. 5. Large thin grafts should be cut and floated from the razor, cut side down, to a glass slide, by warm salt solution and a needle, keeping the edges uncurled, if possible. 6. The graft should be slid from the glass slide, by means of normal salt solution moisture, and a needle or other suitable instrument, being careful to frequently smooth out the curled-in edges of the graft. It is better to line the anterior and interior portions of the cavity first, and then add more grafts, as seems necessary.

The author then gave the details of the opera-

tion, as performed by many operators, among them Politzer, Ballance, Reinhard, Denker, Milligan, Waggett, Wingrave and Hammond.

DISCUSSION ON THE PAPERS OF DRS. SHAMBAUGH AND ALLPORT.

Dr. Norval H. Pierce asked Dr. Allport if these grafts to which he referred were all primary grafts, to which Dr. Allport replied yes.

Dr. J. Holinger wished to support Dr. Shambaugh emphatically in his statement that the otologist ought to operate on these cases, not the general surgeon, and hoped Dr. Shambaugh could find a way to incorporate this statement into the laws of ethics of the profession. He wished to emphasize this fact, because the present condition is an evident injustice to otologists. It lowers them to the position of routine treaters of running ears. It effaces a great deal of enthusiasm if the surgeon takes away the ideally and financially interesting work. We have all seen the results of surgeons operating on ears in the form of facial paralysis, destroyed hearing, etc., referred to by Dr. Shambaugh.

With reference to the planes in which temporal bones should be cut for studying the anatomy, he wished to refer to one plane of cutting which gives much more information than others, namely, the plane parallel to the tympanic cavity and through the Eustachian tube. It takes quite a good deal of thinking in order to bring that plane into position. You have to open the middle ear through the tegmen tympani and study accurately the position of the saw before you start cutting, but when you succeed in splitting the Eustachian tube in half and at the same time not injuring the tympanic membrane, you will be surprised how clearly you see the position of the aditus ad antrum, of the antrum and of the facial nerve relative to the parts in the mastoid process and relative to the labyrinth.

Regarding Dr. Allport's paper, he wished to remind him that every one of the points brought out are set down in the paper of Siebenmann, in the first number of the *Berliner klinische Wochenschrift*, in 1893. What Ballance has to say about secondary grafting can all be found there. The French and English authors at that time not only criticized, but actually laughed at these endeavors of the German and Swiss authors in dealing with chronic suppurations. The speaker heard the ridicule that was manifested against all these points when he was in Paris. Ballance and others referred to by Dr. Allport came long afterwards and Dr. Holinger does not think it just that they should get credit for things that were brought out many years before they considered the matter. It ought to be a scientific principle to give credit to whom it is due.

The speaker has done a good deal of secondary skin grafting—as early as 1893. Not long ago he saw the first patient he operated upon in May, 1893. The ear was still dry and the hearing good.

Dr. George W. Boot had been very much interested in the lantern slide demonstration of Dr. Shambaugh. A few years ago he saw a mastoid in an infant where the bulging of a subperiosteal abscess was in the fossa triangularis. The infant was about seven days old. There had been no discharge from the external auditory canal.

Dr. Joseph C. Beck said that he thought if Dr. Holinger would give an outline of how the section he referred to is made, probably some of the men present would make such sections for themselves. Piff of Prague had shown Dr. Beck how to make them by taking a line from the tip of the petrous portion of the temporal bone as one landmark and the tip of the mastoid as the other, sawing through the petrous portion of the temporal bone. In this way you get that section just about right, and you will find that in making a number of these sections you will just about get the outline that Dr. Holinger mentioned. However, the speaker doubts very much whether you could get the information from only that one section as from those shown by Dr. Shambaugh. He felt very much indebted to Dr. Shambaugh for his presentation. While it was perhaps not exactly new, yet it is most important for us to rehearse and see these specimens.

Regarding Dr. Allport's paper, no matter who has the right to priority in Germany, at least, so far as the speaker knows, Ballance is the man who has made skin grafting in mastoids the operation it is at the present time. Perhaps it is the fault of the readers—that they do not read so much of the German literature. At any rate, it is the excellent work of Ballance we are always connecting with our work in mastoid surgery. That does not mean that we would like to take anything away from Germany.

Dr. Beck has employed skin grafts ever since he learned to do the radical mastoid operation, using them, giving them up, and taking them up again, doing them in every way suggested, and when Dr. Hammond showed his method at the Otological Society he tried his method and gave it up, and is now using the primary skin graft. After smoothing the bone of the mastoid cavity as much as possible, immediately placing large grafts—two, and at most three, in number. He has never scraped or burred the inner wall of the middle ear or any part therein. He believes that to be unnecessary. It is very dangerous and he does not think it should be done. The speaker felt the members were indebted to Dr. Allport for his exposition of the subject, even if it is old.

Dr. Allport, closing, said that he did not intend to present anything new to the society. There is certainly nothing new in skin grafting and his object had merely been to give a resume of the subject.

CHICAGO OPHTHALMOLOGICAL SOCIETY

A regular meeting was held March 15, 1915, with Dr. William E. Gamble in the chair.

INJURY OF THE EYELID.

Dr. Oscar Dodd exhibited a man who, on the 30th of January, was hit at the inner corner of the eye with a cow's horn, tearing the nasal end of the upper lid off completely and also carrying the cartilage of the lid off from the levator. When he saw the man ten days later the upper lid was hanging down on the cheek, the nasal end completely. There was a large amount of granulation tissue, a great deal of ecchymosis, and considerable secretion from the conjunctival surface. Patient was sent to the hospital. Dr. Dodd was able to bring the lid up to place and coapt the torn surfaces very well; he managed to get the conjunctiva together and to coapt the skin perfectly. He then waited for the secretion to subside as well as the edema of the lid, so that he could operate upon the levator for the lid hung perfectly motionless over the lower one. Two weeks ago he operated again, doing an operation exactly like the Bush operation for ptosis, with the exception that the levator of the lid, instead of being in place, was torn loose and separated three-quarters of an inch from the cartilage and retracted as far as possible. A large amount of new tissue had been thrown out so that it was difficult to get at the muscle and free it and bring it forward. Finally he did so. He introduced three loop sutures to get the muscle and sutured to the outer surface of the cartilage, suturing the skin separately.

There was one point in the operation which complicated it somewhat and had prevented an immediate cure. This was the fornix. He said he should have removed it when he brought the muscle forward, for it was impossible to free it entirely. The secretion was so great that he did not dare do it for fear of infecting the wound, So

in bringing it down it formed an entropion of the superior fornix which extended down under the upper lid to the border of the lid. The edema was very great after operation, but this was subsiding. Later he expected simply to incise a large part of the prolapsing fold so that the lid will go back in place. Movement was very good, and he thought the patient would be able to use the eye without any trouble.

Injuries of the lid were quite rare according to the literature. Injuries, however, of the eyeball from cow's horn were not rare. Of 1,250 severe injuries of the eyeball, where sight was lost, 59 were due to injuries from cow's horn. He had seen a number of cases, but never one of the lid before. He had never seen the levator torn off so completely as in this case.

Dr. Michael Goldenburg related a similar case which came under his observation three years ago, but the injury was not the result of trauma from a cow's horn. A little boy, four or five years of age, came into the clinic with the upper lid hanging off to one side, held by a piece of skin four or five mm. wide. He had been playing on top of a barn. In front of the barn there was a hook upon which a harness is hung. Patient either fell off or jumped off and caught the upper lid in this hook. He saw patient two or three hours after the accident, had him taken to the operating room, and put two sutures in the upper fornix and along the margin of the lid, the skin and outside, and the boy made a perfect recovery. One could hardly detect the scar after two weeks.

Dr. Lee Wallace Dean, Iowa City, Iowa, mentioned a family in which the history of any ocular or degenerative astigmatism was negative except for the appearance of a ptosis in the father. Every one of the children had ptosis. One child had a partial external ophthalmoplegia. The mother had no difficulty. It was a case of family degeneracy with hereditary ptosis and external ophthalmoplegia.

GRAM NEGATIVE DIPLOCOCCI IN THE CONJUNCTIVA.

Dr. Robert Blue selected this subject as an entrance thesis, it having been suggested to him by the finding of Gram negative diplococci from smears from a case of conjunctivitis which proved to be *Micrococcus catarrhalis* on staining and cultural growths. After briefly outlining the laboratory technic, the limits of variability of this organism were discussed. Emphasis was laid upon the necessity and advantage of classifying bacteria according to groups or families rather than as individuals. The basis of this grouping is found in the usual habitat, morphology, staining reaction, cultural characteristics and agglutination phenomena of the bacteria.

The members of the group denominated Gram negative diplococci, that is, the *Micrococcus catarrhalis*, *Meningococcus intracellularis* and the gonococcus were then individually discussed from

both the clinical and laboratory standpoints, the literature on these points being freely quoted.

The paper closed with certain clinical deductions, among which were the necessity of treating any purulent conjunctivitis containing Gram negative diplococci, resembling the gonococcus, as a gonorrheal conjunctivitis pending a definite diagnosis, and the necessity of guarding against a diagnosis of mild gonorrheal conjunctivitis without using exhaustive cultural and laboratory tests.

DISCUSSION.

Dr. George F. Suker said that many cases diagnosed as gonorrheal ophthalmia and said to have gotten well in four or five days were not true cases of this disease. Gonorrhea, whether it involves the conjunctiva or urethral mucous membrane, would not get well in two or three days, so that the time limit for the cure of the disease would eliminate gonococcus infection.

Dr. Thomas Faith stated that, after hearing the paper, he was more and more impressed with the little value that one could attach to the ordinary slipshod bacteriological work done in the office, and that if any of this work was to be done at all it should be done by a thoroughly trained expert.

Dr. Wesley Hamilton Peck called attention to a paper presented by Professor Nogouchi, in which he brought out the same line of thought in regard to the differentiation of the *Spirocheta pallida* from other organisms that might be confused with it. Later, about two years ago, Rosenow presented a paper before the Chicago Medical Society in which he demonstrated conclusively the possibility of the pneumococcus being transformed into a streptococcus under certain changing environment.

He thought the society should thoroughly appreciate Dr. Blue's continuation of this subject in reference to ophthalmology.

PAUL GUILFORD, Secretary.

(To be continued)

MADISON COUNTY.

The Madison County Medical Society met in the Commercial building in Alton on April 2, 1915, with President Dr. L. G. Burroughs in the chair. Members present: Drs. Luster, Theodoroff, Kiser, Binney, McKinney, Shaff, Bowman, W. H. C. Smith, Cook, Sutter, Wedig, Hirsch, Burroughs, Barnsback, Pfeifferberger, Haliburton, Frank Worden, Beard, Hastings, Fitzgerald, Hamm, Waldo, Fisher, Lemen, J. H. Fiegenbaum, E. F. Fischer, Hale, Taphorn, Robinson, Sims, Everett, Jones, Joesting and E. W. Fiegenbaum. Visitors: Dr. Cleveland H. Shutt of St. Louis, Dr. Harry S. Seiwel of the Alton State Hospital and Dr. O. O. Giberson of Alton. Dr. R. C. Berry of Livingston and Drs. Harry S. Seiwel, A. P. Robertson and Geo. L. Samuels were elected to membership. Drs. Pfeifferberger, Cook and Taphorn were appointed as a committee to arrange for our annual banquet to be held in Alton in May. An invitation from the Greene County Medical Society to meet in joint session was accepted and a committee consisting of Drs. Lemen and W. H. C. Smith were appointed to make all necessary arrangements. The annual invitation of Dr. W. H. C. Smith to meet at Beverly Farms at Godfrey for our June meeting was accepted. The invitation of Dr. Harry S. Seiwel to meet on the site of the Alton State Hospital in July was, on motion of Dr. E. A. Cook, accepted. A letter from the secretary of the state

board of health asking that the moving picture film, "Tommy's Birthday," be exhibited in this county was read and referred to a committee consisting of Drs. Siegel, Bransback, Binney, Hastings and Kiser. Dr. S. T. Robinson read the report of the Committee on the Harrison Bill, which was accepted by the society and the following resolutions unanimously endorsed:

THE FEDERAL NARCOTIC LAW AGAIN.

REPORT AND RESOLUTIONS OF THE MADISON COUNTY MEDICAL SOCIETY.*

Mr. President and Gentlemen of the Madison County Medical Society:

Your committee appointed to consider recent federal legislation on narcotics, desires to report as follows, and recommends for your acceptance the following resolutions:

WHEREAS, The new federal narcotic law, which went into effect March 1, 1915, gravely affects physicians and surgeons in an unfair and unjust manner, we, the Medical Society of Madison County, Illinois, express ourselves as follows concerning this law and its relationship to the profession at large, giving herewith some of the reasons for such expressions.

The law is unfair because:

1. It is a reproach to the entire medical, and other healing professions. The law necessarily assumes that the profession is the agent largely responsible for this evil. This we deny. Neither do we believe the evil to be as widespread as reported; that often it has been grossly exaggerated. That individuals are guilty of recklessness in the use of these drugs, and even of pandering, we admit; but to brand three allied professions in the unspoken anathema that this law contains is a conception of gratuitous ugliness that is as far from a smiling vision of fairness as are so many other conceptions of politics.

2. That the government must punish law-breakers, we readily recognize. The law, however, so embraces the healing professions that it rigidly utilizes every member in its pursuit of guilt. In other fields of citizenship this complication, now forced on us, is entirely absent. Its imposition on the medical man, to whom this country's debt is boundless, is entirely devoid of any feature that is pleasing, attractive, or beautiful. On the contrary, it contains many stings of cruelty and indifference to our position. We, therefore, again decry the law as unfair; as an ugly creature of politics.

3. The law is in parts obscure, some of its provisions uncertain, its interpretation wholly in the hands of an official whose tenure of office is subject to change every four years. The only possible appeal from his decisions is an expensive procedure in the courts. Medical men, by training, are ill prepared to deal with such a situation, or with the uncertainties the law brings about. These uncertainties may tend to lead them into legal entanglements and unwarranted expense; or else, in case of error, to put them at the

*Adopted April 2, 1915.

mercy of courts and prosecuting attorneys. If the profession was primarily a money-making vocation, this might be reasonably regarded as a necessary element of business expense. But ours is not a business, it is a humanitarian profession, essentially not money making except in rare instances, which establish nothing beyond the individual's success in commercializing his vocation. The great majority of physicians gain little more than a living, and many do that only on a narrow scale. Year by year the heroic efforts of the profession are constantly limiting the areas of disease, with attendant narrowing of incomes. This process, instituted and steadily carried on by the profession itself, is sharply against the profession, wholly in favor of humanity. The world offers no other example of men who so sink ungrudgingly their own material interests. But here, in return, we have forced upon us, and must confront, a situation obscure, ungrateful, and one at times possibly full of peril. The malign espionage of the paid informer must now be endured, an entirely new experience for the profession. Thus, as ingratitude is always devoid of any charm, and a lowering prospect can never be inviting or reassuring, we feel increasingly justified in again saying that this law is unfair.

The law is unjust because:

1. It imposes upon the allied professions the expense of its maintenance. Granted that this expense to the individual is small, in the aggregate it is large. But the principle involved is quite independent of either consideration. When, too, we weigh the small incomes and struggles of many of our members, it means every year the loss per capita of a dollar and more that often can be ill spared. In addition, we must decorate our consulting rooms with an engraved license, just as the tobacconist and the saloonkeeper do. We are also tagged and numbered just as they are. We are even compelled, under heavy penalty, to keep this engraving in a conspicuous place. In fine, we are put among the publicans, the people who serve the appetites of mankind. Shades of Hippocrates, of Harvey, of Lister! Was there no brave soul to protest this thing in advance? And now there looms just ahead always the shadow of heavy costs for any good man without means to fight, if caught in an omission under the law. These will often mean both moral and material ruin.

Moreover, if this law is for the good of the entire nation, why should one class of men be called on to bear the burden,—the tax, the maintenance, the labor, the responsibility, and the penalties? Do the improved health and sanitation of the country count for nothing? Are we not doing enough in constantly whittling our incomes? Or, must we still more bend our shoulders? In their craze for special taxes, do our lawmakers covet even of those lessening dollars we still earn? Be they so blind that they can not see or remember what the profession is constantly giving without even a word of reminder save on rare occasions like this one? Shall we tell them that old, old story of the worm that sometimes will turn? Surely,

and we believe, this great people can have no taste for such close driven exactions, and for the enactment that imposes them we hold our legislators wholly responsible. The law, we believe, is an unjust one.

2. The law requires much uncongenial labor, involving tedious detail and weighty responsibility, with heavy penalties, without a particle of compensation. These facts apply particularly to those physicians who, through the country habitation or other peculiar needs of their clienteles, do a dispensing practice; and circumstances point to an ever increasing number of physicians who must thus work. On the other hand, the drug associations of the country advocated and greatly helped in pushing through this law. Considering the growth of the dispensing element among us, and bearing also in mind the general resentment among druggists over this development, their activities in favor of the law look very much like an effort to cripple the dispensing physician, who, let it be borne in mind, is today an absolute necessity in many sections. Indeed, it is difficult to escape the conviction of selfish action in this matter. It is sufficient to say now that if results come as seemingly was planned, the farmer and his wife will quickly join the discussion. Then something really worth while will be said. Meanwhile, the burden on the profession will remain, and, as has been hinted, may even grow. If we do so much well, more may be added. Moreover, this burden is imposed on men who are ill constituted, and not trained at all, for such work. The physician is proverbially a loose business man, the laughing stock of the commercial and financial worlds. Of necessity his habits and hours are irregular, his methods constantly changing, his passion for discovery so intense, his calls often so imperative, their direction ever veering, that the only method that can exist in his work is the method of regular irregularity. But here he is sternly halted and commanded to follow a program which requires method, precision, regularity, even the petty details of bookkeeping. We all know how we lie entranced on this side of our profession! That some innocent men will get entangled seems very probable. That some others, sick people, may at times have their sufferings prolonged through the conservatism of this medical man, seems also possible; while service through the telephone will undoubtedly be crippled. Thus hardship is brought on many, without compensation for those who must bear the burden. Again the law seems to us most unjust. Be it therefore,

Resolved: 1. That we herewith express our deep dissatisfaction with the law. That besides being unfair and unjust, we believe it to be unwise. That it puts the entire burden of a theoretical benefit to the nation on the medical and allied professions, that it will cost these professions far too much for what it may accomplish; that this cost should be borne by all. We request all medical, dental, and veterinarian societies in this state to co-operate in this matter and we request the council to take helpful action. We herewith instruct our representative to the House of Delegates to act in all proceedings in accordance with

the spirit of these resolutions, and to do all in his power to have the delegates to the National Association instructed to take similar action. Be it further

Resolved: That our representatives in Congress be requested to take immediate steps at the next session, for the repeal or modification of this law. Be it also

Resolved: That a copy of these resolutions be sent to President Wilson, to our representatives in Congress from this district, to the senators from Illinois, to the president of the State Medical Society, to the council, to the dental and veterinarian societies in Madison county, and to the ILLINOIS MEDICAL JOURNAL with request to print in next issue.

(Signed) S. T. ROBINSON, M. D.,
Chairman.

L. G. BURROUGHS, M. D.

E. W. FIEGENBAUM, M. D.

R. W. BINNEY, M. D.

VERMILION COUNTY.

The Vermilion County Medical Society met in clinic at St. Elizabeth's Hospital, Danville, April 12, 1915. The program started at 1:30 p. m. and consisted of operations and demonstrations of cases as follows:

Fracture of the neck of the humerus, F. M. Mason.

Laparotomy, C. E. Wilkinson.

Mastoid demonstration, Benj. Gleeson.

Duodonal ulcer from laboratory viewpoint, E. G. C. Williams.

Tuberculosis of the cecum (post-operative), O. H. Crist.

Demonstration of interesting fractures, F. W. Barton.

Demonstration and discussion of a case of nephritis, R. S. McCaughey.

Demonstration of the application of a bandage for indolent ulcer of the leg, Solomon Jones.

Mastitis operation, H. F. Hooker.

The afternoon was profitably and enjoyably spent. At 6 o'clock the Sisters served an elaborate banquet to about fifty members. After dinner Vice-President James called the meeting to order and introduced as toastmaster Dr. E. B. Coolley. Dr. Coolley, with some well fitted remarks, introduced the speakers of the evening. Dr. J. M. Guy spoke on "The Doctor's Automobile," Dr. L. B. Russell on "The Night Rider," Dr. F. M. Mason, "The Country Doctor." The main point of Dr. Mason's talk was that the most of the country doctors are in the city. Dr. Joseph Fairhall spoke at length on the advantages of the clinical meetings and the getting together and good fellowship which they promoted. The business meeting followed. Communication from Champaign County Medical Society, asking for joint meeting, was tabled until the next meeting. Applications for Dr. Wolfington of Bismarck and Dr. Williams of Pence, Ind., were referred to the board of censors.

Dr. Coolley reported on the optometry bill pend-

ing at Springfield. On motion the secretary was instructed to write to senators and representatives asking their co-operation in the defeat of this bill.

O. H. CRIST, Secretary.

Personals

Dr. C. R. G. Forrester announces his removal to 10 S. La Salle street, Chicago.

Dr. I. Clark Gary, Chicago, was injured in a collision between automobiles, April 4.

Dr. Alice Hamilton, Chicago, sailed for Europe with the peace commission, April 13.

Dr. Micheal J. Purcell was recently appointed city physieian of Chicago by Mayor Thomposn.

Dr. Emory Hill announces that he has removed to 30 N. Michigan boulevard, Chicago.

Dr. George L. Perusse, for two years superintendent of the Michael Reese Hospital, has resigned.

Dr. George A. Lurie, Chicago, started for Serbia recently to join the Serbian Red Cross service.

Dr. Dillon G. O'Neil, Elgin, has been appointed assistant physician on the staff of the Anna State Hospital.

Dr. Frank Holt, assistant superintendent of the Boston City Hospital, has been elected superintendent of Michael Reese Hospital.

Dr. John B. Murphy, Chicago, received the honorary degree of doctor of laws from the Catholic University of America at Washington April 15.

Dr. William Dougall, Joliet, who has been critically ill in St. Luke's Hospital, Chicago, is reported to be improving.

Dr. Ralph H. Wheeler, formerly of Drs. Wheeler & Forrester, announces the partnership of Drs. Wheeler, Sinclair & Gotchy. The new firm came into existence on May 1, 1915, with their principal office in the Stewart Building, No. 108 N. State St., and a branch office on the West Side, No. 9 So. Clinton St., corner of Madison St., Chicago. Dr. Wheeler had been located in the Champlain Bldg., No. 8 No. State St., for the past twenty-one years and has de-

voted his exclusive time to the surgery of accidents. The new firm will continue in the same line of practice.

News Notes

Dr. S. C. Stanton has removed from 640 Sheridan road to 514 Belmont avenue, Chicago.

—The Illinois National Guard has begun the inoculation of its members with antityphoid vaccine.

—One wing of the Lutheran Hospital at Moline to cost \$60,000 and accommodate 60 patients is under construction. The completed building will cost \$160,000.

—The committee on appropriations has refused the request of Dr. Gahagan, superintendent of the Elgin State Hospital, for the erection of a special female ward and a tuberculosis sanitarium.

—Another bill of interest to physicians was introduced by Dr. James A. Womack of Equality, requiring health certificates to be presented by both men and women before county clerks can issue marriage licenses.

—The Robert Koch Society for the Study of Tuberculosis held a meeting Friday, April 30, at 8 p. m., in the board room of the Municipal Tuberculosis Sanitarium, Room 1514, 105 W. Monroe street. Subject, "When Should Gestation Be Terminated in Case of Pulmonary Tuberculosis." Discussion.

—A testimonial banquet to Dr. A. Jacobi, New York, was arranged by the medical profession, under the auspices of the Bronx Hospital and Dispensary, on the occasion of his eighty-fifth birthday, May 6, at the Hotel Astor.

—Dr. Heman Spalding of the Chicago Department of Health denies that he diagnosed a case of foot and mouth disease in the person of a Winnebago blacksmith and declares that he was misquoted in the press recently.

—Dr. Aime Paul Heineck, Chicago, in his suit to compel the county civil service commissioners to set aside the order eliminating the examination for attending physicians at the County hospital in 1911, secured from Judge Fornoff a writ of mandamus on April 24. The defendants, however, took an appeal.

—A bill introduced in the House by Representative William G. Thon of Chicago and supported by the State Board of Health, provides that physicians shall report within six hours to the State Board of Health all infants observed with sore eyes or born blind. The State Board has already provided supplies of nitrate of silver solution for free distribution.

—The Illinois traction system offers return fares from the Springfield meeting for one-third regular fare when receipts for going fare are validated by W. H. Selmore, Springfield, provided fifty or more certificates of attendance are presented. Tickets for going trip will be issued May 17-20 and return, May 18-21, tickets good on day of sale or one day later. The Illinois traction system comprises the following lines: Bloomington, Decatur & Champaign Railroad Company, Danville, Urbana & Champaign Railroad Company, Illinois Central Traction Company, St. Louis Electric Terminal Railroad Company, St. Louis, Springfield & Peoria Railroad. In connection with Alton, Granite & St. Louis Traction Company.

—The Cook County Civil Service Commission has called an examination for the position of Junior Physician in the Tuberculosis Hospital at Oak Forest at 2:00 p. m., May 13, 1915. This position pays \$125.00 per month, and the examination is open to licensed practitioners who are legal residents of Cook county.

There are in the neighborhood of 600 tuberculosis patients in all stages of the disease at the institution. The tuberculosis hospital is being equipped with a modern laboratory for the purpose of doing research work in connection with tubercular diseases.

On May 21, at 2:00 p. m., an examination will be held for the Attending Staff of the County Hospital Department of Tuberculosis.

—The following program has been arranged by the Chicago Tuberculosis Institute for the delegates to the National Association for the Study and Prevention of Tuberculosis on the way to the eleventh annual meeting in Seattle:

TUESDAY, JUNE 8.

ELECTIVE PROGRAM.

Delegates will be provided with automobiles to visit various tuberculosis institutions about Chicago, such as:

1. Edward Sanatorium, Naperville, Ill.
2. Chicago Fresh-Air Hospital, Rogers Park, Ill.
3. Chicago-Winfield Sanatorium, Winfield, Ill.
4. Ridge Farm Preventorium for Children, Deerfield, Ill.

5. Tuberculosis Department of the Cook County Hospital, Chicago.

6. Cook County Tuberculosis Hospital, Oak Forest, Ill. (by Railway).

7. Trip to Industrial Establishments to study the methods of Supervision of Health of Employes.

7:00 p. m. Good Fellowship Dinner, Red Room, Hotel La Salle, Delegates being guests of the Chicago Tuberculosis Institute.

WEDNESDAY, JUNE 9.

8:00 a. m. Automobiles to Municipal Tuberculosis Dispensaries, Open-Air Schools and Tuberculosis Exhibit.

Noon. Automobiles to Municipal Tuberculosis Sanitarium.

1:00 p. m. Luncheon at Municipal Tuberculosis Sanitarium.

2:00 p. m. Inspection of the Sanitarium.

4:00 p. m. Automobiles to Chicago, returning at 5:00 p. m.

6:35 p. m. Canadian-Pacific party leaves from Grand Central Station, Harrison street and Fifth avenue.

10:15 p. m. Glacier National Park party leaves from Union Station, Adams and Canal streets.

Marriages

CHARLES RICHARD LOCKWOOD, M. D., Kankakee, to Miss Mary Elsie Curry, of Chicago, April 24.

EDWARD WHITNEY BODMAN, M. D., Chicago and Winnetka, Ill., to Miss Julia Lord Barry of Montclair, N. J., April 19.

THOMAS S. LORTON, M. D., Pana, Ill., to Miss Mary Oughton of Belleville, Ill., at Hillsboro, Mo., Jan. 12.

Deaths

CYRUS E. HEYWOOD, M. D. Rush Medical College, 1868; died at his home in Casey, Ill., March 21, aged 71.

JEROME CHARLES MARION CHAFFEE (license, Illinois, 1896), a practitioner for forty-six years; died at his home in Chicago, April 1, aged 69.

CAROLINE MORROSCO VON LANGAU, M. D. California Eclectic Medical College, Los Angeles, 1888; died at her home in Chicago, March 17.

JAMES ANDERSON (license, years of practice, Illinois, 1878), died at his home near Louisville,

Ill., about February 27, from heart disease, aged 89.

JOHN ROBERT BARNETT, M. D. Rush Medical College, 1881; formerly of Lincoln and Peoria, Ill., but more recently a resident of Imboden, Ark.; died in Peoria, March 29.

FRANK H. HONBERGER, M. D. Hahnemann Medical College, Chicago, 1890; of Chicago; professor of obstetrics in his alma mater; died in Hahnemann Hospital, Chicago, March 29, from heart block, aged 58.

WILLIAM ORLANDO HARLAND, M. D. Rush Medical College, 1877; for many years a practitioner of Mahomet and Mansfield, Ill.; died at his home in the latter city, March 16, from angina pectoris, aged 58.

FRANCIS M. BEALS, M. D. Eclectic Medical Institute, Cincinnati, 1879; chairman of the Board of Health of Mattoon, Ill., and a member of the staff of the Mattoon Hospital; died at his home in that city, March 31, aged 62.

JOHN MILTON PILSBURY, M. D. Jefferson Medical College, 1865; surgeon of U. S. Volunteers during the Civil War and for forty years a practitioner of Chicago; died at his home in that city, March 30, aged 77.

GEORGE S. CHALMERS, M. D. Physio-Medical Institute, Cincinnati, 1878; formerly a member of the Illinois State Medical Society and for twenty years coroner of Knox County, Ill.; died at his home in Galesburg, March 18, aged 70.

CHARLES WARREN JOHNSON, M. D. Jefferson Medical College, 1872; for nearly thirty years a practitioner of Litchfield, Ill., and for many years health officer of that city; died at his home, January 28, from cerebral hemorrhage, aged 66.

GUSTAV FERNITZ, M. D. Louisville (Ky.) Medical College, 1881; a member of the Illinois State Medical Society; for fifteen years editor of the Louisville *Anzeiger* and for the last thirty years a resident of Chicago; died at his home, March 21, from cerebral hemorrhage, aged 70.

MARTIN M. SAUCERMAN, M. D. Rush Medical College, 1881; a member of the Illinois State Medical Society; and a practitioner of Rock Grove, Ill., for many years; died at his home in Monroe, Wis., March 31, from bronchopneumonia, aged 71.

A NEW FEMALE DISEASE.

Dr. A. L. Mann of Elgin rises to inquire the pathology of the liver in the chorus sung by Roy Atwell, as follows:

"Some little bug is going to find you some day,
Some little bug will sneak behind you some day,
With the nerves all a-quiver,
He'll give you *sorosis* of the liver.
Some little bug is going to find you some day."

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. By Oliver S. Ormsby, M. D., Professor of Skin and Venereal Diseases in the Rush Medical College, Chicago. Octavo, 1168 pages, with 303 engravings and 39 plates in colors and monochrome. Cloth, \$6.00 net. Lea & Febiger, Publishers, Philadelphia and New York.

Dr. Ormsby's recognition as one of the world's foremost dermatologists gives to this work the stamp of high authority.

It falls to the lot of but few men to have such an enormous clinical experience as has Dr. Ormsby. His long association with the late Doctors Hyde and Montgomery, his long service in the Dermatological Department of Rush Medical College, together with his very large private practice, has secured for him a clinical experience but seldom gained by one individual. The results of this experience are now given in this volume.

The field of Dermatology has been changing just as rapidly as any other medical specialty, and in this volume the present-day knowledge is given. Besides giving his own views, Dr. Ormsby has very thoroughly reviewed the literature on all dermatological subjects.

The volume is concise, but its descriptions of cutaneous conditions are sufficiently detailed to be of real value to practitioner, specialist or student. Many new diseases have recently been differentiated, and new facts discovered concerning the nature and course of previously known diseases. All these findings are taken up and harmoniously developed in the author's finished consideration of the subject. The striking results of recent research in the etiology and pathology of cutaneous diseases are assigned their proper places, and the newer methods of diagnosis are presented at length.

The consideration of treatment is well developed, and the directions are most explicit. His therapeutic recommendations are clear and positive, and include not only the standard treatments, but also the special methods which have been so extensively developed during the past few years.

A notice of this work is not comprehensive without comment on the illustrations, which are excellent, and consist of 302 engravings and 39 plates in color.

As a text-book for students, we believe it is unexcelled; as a reference work for the general practitioner, it is very complete, and the specialist will be

more than pleased to have Dr. Ormsby's authoritative statements.

We wish to congratulate Dr. Ormsby on the production of the book, and recommend it to our readers.

TRANSACTIONS OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA. Third Series, Volume the Thirty-Sixth. Acta. Coll. Med. Phila. Instit. A. D. MDCCCLXXXVII. Non sibi sed toti. Philadelphia. Printed for the College. 1914.

SURGERY OF THE BLOOD VESSELS. By J. Shelton Horsley, M. D., F. A. C. S., Surgeon in Charge of St. Elizabeth's Hospital, Richmond, Va.; a founder and Fellow of the American College of Surgeons; ex-president of the Richmond Academy of Medicine and Surgery; member of Southern Surgical and Gynecological Association, etc. Illustrated. St. Louis. C. V. Mosby Company, 1915.

This book by Horsley is the last we have in blood vessel surgery and demonstrates some wonderful surgery on blood vessels. It is but a few years since surgery of blood vessels was not attempted beyond the ligation of certain vessels. Dr. Horsley is one of the Americans who has advanced this work with wonderful strides.

The book is generously illustrated with drawings which are remarkably plain and add an unusual value to the text. Many photographs demonstrate the results and the author is to be congratulated.

It seems to us from a perusal of this book that more work of this kind could be employed in emergency surgery.

Every surgeon should give this book a careful study.

We congratulate the bookmaker on the excellent mechanical makeup of its pages.

INFECTION AND IMMUNITY. A Text-book of Immunology and Serology. For Students and Practitioners. By Charles E. Simon, B. A., M. D., Professor of Clinical Pathology and Experimental Medicine, College of Physicians and Surgeons, Baltimore; Pathologist to the Union Protestant Infirmary, the Women's Hospital of Maryland and the Mercy Hospital, Baltimore. Third edition, enlarged and thoroughly revised. Octavo, 351 pages, illustrated. Cloth, \$3.25 net. Lea & Febiger, publishers, Philadelphia and New York, 1915.

No field of medicine is undergoing radical change so fast as do our theories of infection and immunity. This is demonstrated by a new third edition of Simon's "Infection and Immunity" only two years after the second edition.

This new edition embodies every advance in this vitally important field of medical activity, related in such a way that the practitioner may readily grasp the author's meaning. Entirely new sections have been added and a large amount of new material has found its way into these pages. Several really excellent plates are given and colors are shown perfectly.

The work is condensed, yet very clear, and covers the field in a satisfactory manner.

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Original Articles

THIS GENERATION'S CONTRIBUTION TO THE PROGRESS OF MEDICINE.*

ALBERT L. BRITTIN, M. D.,
ATHENS, ILLINOIS.

Ladies and Gentlemen: The celebrated writer, Dr. Samuel Johnson, in one of his works tells the story of a man who invented a pair of wings; and who, having completed them, ascended a high rock overlooking a lake with the object of flying over the water; his attempt, however, failed, and he fell ignominiously into the lake. Here a strange thing happened: the wings, which refused to support him in the air, easily supported him in the denser element of water and he was able to move with ease and safety. Now, I feel like the man in this story; I cannot rely on anything of my own work to tell you that will support me in this address; I must rely on the general work of the medical profession and this, I think, will give me ample support. I propose, therefore, to address you on the "Progress of Medicine" during the generation in which we live and which, most of us at any rate, are conversant with; a progress so great that it is unparalleled in the whole history of medicine; a progress so extensive that the whole art of medicine has been metamorphosed; a progress so marvellous that in the short space of little more than thirty years more has been accomplished in medical science and medical art for the benefit of humanity than in all the ages that have preceded this epoch.

Medical knowledge, which thirty years ago was merely a collection of clinical observations and theories founded upon them, resulting in treatment, which was mostly empirical, today stands upon a firm scientific basis. This is the keynote of our progress, that our procedures, today,

have for their basis, accurate facts, the result of scientifically demonstrated truth.

Medicine is both a science and an art. Medical science consists of the determined laws and facts relative to the preservation of life and health. It takes cognizance of the factors concerned in the causation of disease. It investigates the normal and abnormal. Its handmaidens are the co-ordinated sciences of anatomy, physiology, pathology, and pharmacology. Everything that may cause a departure from normal conditions, every circumstance that is concerned with the restitution of the body to normal conditions, is a fitting subject for investigation by medical science. Hence it may call to its aid biology, chemistry and physics, to help in the elucidation of facts pertaining to its own objects.

The art of medicine is the practical application of the facts determined by scientific medicine to the cure of disease or to its prevention.

Now it is manifest that medical art to be of value must rest on a secure scientific foundation. If we do not know the exact causes responsible for the conditions with which we are dealing, how can we hope to successfully cope with these conditions? A thorough knowledge of the conditions which determine disease and those that favor or disfavor its development is the first essential of practical therapeutics. All scientific medicine is directed towards a successful therapy.

The great triumph of medicine during the past thirty years, is, that our therapeutics are now soundly scientific, that our treatment is specific for specifically known conditions. Disease, indeed, was always with us, but we knew it not. Its clinical course had been accurately observed; symptoms both favorable and unfavorable could be interpreted; but the nature of most diseases and the mode of their incidence was a dead letter. As regards the great mass of disease, etiology was either unknown or entirely erroneous. Great anatomical and physiological prog-

*Presidential address at the sixty-fifth annual meeting of the Illinois State Medical Society, Springfield, May 18, 1915.

ress had no doubt been made; but isolated discoveries such as the circulation of the blood were of little use to man who had to deal daily with disease. In the light of the present day knowledge the profession of thirty years ago was densely ignorant. And in the art of surgery, brilliant even as it was—for in those past days there were giants of the scalpel—yet their great anatomical knowledge and splendid technic were nullified by factors of disease which baffled them and which they were powerless to deal with.

The second half of the nineteenth century has been called the age of scientific experimental research. This was a period that witnessed an extraordinary outburst of scientific activity. The researches of Darwin and his co-workers had stimulated the work in experimental biology, which was destined to be of such moment to medical science. In this period men sought with untiring zeal to unfathom the facts relative to life, to study normal and abnormal conditions of life and to segregate the essential causes of disease. The directive force of this activity gave to etiology—the doctrine of causation—the dominant place which it now holds in medicine. In the survey of the historical progress of medicine during this period no one can fail to be struck by the marvelous advance in etiology, the origin of disease, the mode of its incidence, the investigation of its course and sequelae and the conditions which modify it. It is no wonder that the survey of this field, this most active and successful work, led Osler to exclaim that the "Experimental work in physiology and pathology during the second part of the last century did more to emancipate medicine from the routine and thralldom of tradition than all the work of all the physicians from Hippocrates to Jenner."

It is not possible for me within the limits of this address to deal with the many phases of medical progress, and I must therefore confine myself to a somewhat generalized enumeration of them. The three great factors in disease on which investigation was centered were:

(a) The nature and essential causes of disease.

(b) The power of resistance to disease.

(c) The circumstances affecting disease.

As regards the nature and essential causes the most signal advance is connected with two great names—Virchow and Pasteur. To Virchow we

owe the basis of our present system of pathology and all that this implies and to Pasteur we are indebted for the elaboration and proof of the germ theory. To Louis Pasteur more than to any man before or since his time is modern medicine indebted, and I have no hesitation in saying that to his work more than to all the work of all the scientists in all ages is humanity indebted. This may seem at first a strong opinion, but I think that an analysis of the facts directly traceable to the influence of his discoveries amply justifies it.

Virchow's great contribution was the establishment of his system of cellular pathology, based on the study of the minute morbid histology of tissues and structures which were traced back to the primary cell. It was his dictum that in the primary cell must be sought the beginning of disease. Correct pathology must depend on correct physiology and as Adami points out:

There was a long standing divorce between physiology and pathology (which, however, are inseparable in the dependence of the latter on the former). Virchow developed modern pathology; his teaching was based upon exact study of diseased organs and the correlation between gross and microscopic effects. Effects were followed back to the cell comprising the tissues. In place of considering organs or tissues as units there was developed a true cellular pathology.

Virchow's researches were of the utmost value to both physiologist and pathologist in tracing normal and abnormal growths. The chemistry of the cell—physiological chemistry—became a matter of prime importance and may almost date its inception from this period. There was a different conception of life. It was seen that it was a continual dependable process—a more or less chemical process of breaking down of complicated structures into simpler ones and reconstructing new from old. If we do not understand the laws which govern the forces that originate these processes we are at least satisfied that our knowledge of their working has materially advanced and is continually widening as investigation proceeds. A vast field is still open for investigation for it is essential in the study of metabolism as well as therapeutics that the methods of arrangement of the elemental substances which form different compounds in the body should be known as well as the chemical processes which bring them about. It is only a matter of yesterday that Nature's laboratory has been opened to us and that we are

enabled to see some of the secret processes of the body itself.

The brilliant work of Pasteur in the seventh decade of the nineteenth century in the development of bacteriology and the germ origin of infectious diseases paved the way for a host of specific discoveries all of which are of the highest moment and practical utility in the medicine of today.

Thus to tabulate these results:

In 1873, Obermier discovered the spirillum of relapsing fever.

In 1876, Koch isolated the bacillus of anthrax, and this was followed in 1883 by his discovery of the bacillus of tuberculosis, the bacillus of typhoid and the bacillus of cholera.

In 1879, Neisser showed that gonorrhea was caused by a specific agent, the gonococcus.

In 1880, Laveran demonstrated the malarial plasmodium.

Friedland in 1883 isolated the pneumococcus.

The Klebs-Loeffler bacillus of diphtheria was discovered in 1884.

Weichselbaum demonstrated the meningococcus in 1887; Pfeiffer the bacillus of influenza in 1891; Kitasato and Yersin the bacillus pestis in 1894; Shiga the bacillus dysenteria in 1902 and in 1905 Schaudin isolated the specific microbe causative of syphilis, the spirocheta pallida, the transmissibility of which by some infective agent had been proved two years earlier by Roux and Metchnikoff.

Pasteur himself had demonstrated the infective origin of anthrax and rabies and inoculated against them with results that are known to all.

The isolation of these causative agents was the signal for the intensive study of their morphology and life-cycles. The role of insects and other carriers of infectious organisms in the transmission of disease was demonstrated—the important effect being the part played by the mosquito in the transmission of yellow fever which was confirmed in 1890 by the immortal work of Ross, Lazear and Carroll, of whom the last two died martyrs to their zeal.

Armed with this specific knowledge of the causative agents of disease the struggle became one between man and microbe. Definite knowledge gave definite diagnosis. Exclusion of agents meant avoidance of disease and where infecting agents had found an entrance specific

means, serums and vaccines, were found to be effective in destroying them. It is in the application of the scientific knowledge to medical art in the prevention and control of disease that the greatest utility of progress must be sought. This is the field above all others in which humanity has been benefited.

The practical aspects of the germ origin of infection and epidemic diseases has not only proved that such diseases can be effectually treated; but for the far more important fact has been brought home to us that they can be controlled and prevented by means well within our power; and that they are avoided when such means are adopted.

This knowledge which has come to us during the present generation has entirely changed the position of the doctor towards the aspect of disease. Today the doctor is more concerned with the prevention of disease than with its cure. He is not content to wait till disease appears. He anticipates the causes, because he knows them and their effects, and he takes timely measures to intercept them. Moreover while recognizing our duty to the individual patient the scope of that duty has been considerably widened and we become guardians of the community at large; hence not only must the medical profession be supervisors of private and personal hygiene, but when actual disease is manifest we become guardians of the public health and take public measures to prevent its spread. This important work, the notification and isolation of communicable disease, is entirely a growth of recent years and of its effects it is unnecessary to speak for it is now an essential part of national life and public policy.

In its campaign of preventive medicine the profession has found it necessary to act as directors of public health measures and to focus the attention to the importance amongst other things of pure water supplies, the disposal of wastes and sewage, the examination and distribution of food supplies, the supervision of the conditions under which the people live and work, the suppression of nuisances, the betterment of hygienic conditions in schools and overseeing the formative conditions generally in the young, as well as the general education of the people in the fundamental laws which govern the avoid-

ance of disease and the improvement of future generations.

Practical preventive medicine has become a function of the state and in all the activities just mentioned it will be seen that the aspect of the doctor and the people in general towards disease has changed and that this change has been imperative, brought about by the undeniable nature of the origin and propagation of infectious diseases.

Now it may here be asked what are the actual results of the application of definite knowledge in the handling of definite disease and its prevention. As regards prevention we can only conjecture what might have been, and we can only point to the conditions in past ages. What we can say is that epidemics of magnitude no longer occur. Yellow fever, cholera, and typhus have all but disappeared. Diphtheria, malaria, typhoid, hook-worm disease and tuberculosis are well within control and show a steadily declining mortality. Let us take just a few examples:

In Boston alone prior to 1882 the death rate from pulmonary tuberculosis was over 42 per 10,000. In the following twenty years it fell to 21 and is now less than 18. These figures may be taken as indicative of results elsewhere and yet tuberculosis is one of the general diseases in which least progress has been made.

Again it was only in 1888 that Roux and Yersin demonstrated that the diphtheria bacillus kills by producing a soluble poison in the system. Two years later Behring and Kitasato showed how by injecting small doses of this toxin animals became immune to the disease. They demonstrated the general conditions under which immunity against the effects of this fell disease could be obtained. In 1893 the death rate in 19 of the large cities of the world was over 80 per 100,000 of the population; but in 1895, after the introduction of antitoxin treatment, gradually fell off and is now only 15 under all conditions with a constantly lessening ratio. There is no sufficient reason why there should be any deaths, or at least very few if the disease is dealt with in time. In the Boston city hospital for instance during the past sixteen years about 450 cases of diphtheria developed among the staff and attendants in the contagious wards. They received immediate treatment and there has not been a single death due to the disease.

Consider puerperal fever. Puerperal fever was the scourge of motherhood. To women it was what war was to men. The public records of the Prussian state show that in the sixty years ended with 1875, 400,000 died from this disease. In 1879 Pasteur demonstrated the streptococcal origin of this disease and the result is that today the mortality is less than 0.1 per cent.

Again take typhoid. So recently as the Spanish-American war we find record that there were more than 30,000 men disabled by typhoid of which a large portion died. In fact, 86 per cent. of the total mortality was due to it. In all instances where men were exposed to severe conditions, with irregular and poor food and doubtful water supplies the mortality from typhoid was enormous. Protective inoculation has, however, banished its terrors. Within the past few years in an army of 13,000 men mobilized in Texas only one case of typhoid developed. Its value is seen today in the fact that typhoid inoculation is now compulsory in the armies both of the United States and Europe. Quite apart from the prevention of typhoid by better sanitation it is safe to say that tens of thousands of lives have been spared by preventive inoculation.

Similarly with cerebro-spinal meningitis. It is only recently, in 1907, that Flexner perfected his serum treatment for this epidemic disease, with the result that this source of danger to our child-life has had its mortality reduced to one-third, and its concomitant effects, deafness, blindness, etc., almost banished.

If there was any disease more blasting than another in its effects on the population of our southern states it was the hook-worm disease. Its dire effects on the prosperity and well-being of the south cannot be estimated, but it is conceded that to it must primarily be attributed some of the principal factors concerned in the lack of general progress and prosperity which has characterized the south. The recent investigation by Stiles has thrown a flood of light on this disease and we have every reason to hope for its extirpation within a decade.

The application of the bacterial origin of surgical septicemia is responsible for the brilliant advance in surgical results. Since 1876 when Lister inaugurated his antiseptic method of operation, the word marvelous alone can express the series of results which surgery has accomplished.

Abdominal surgery, thoracic surgery, brain surgery, heart and lung surgery, all contribute their quota to these results. There is not a region of the body which the surgeon does not today expose and enter without any fear, and with such well calculated possibilities that surgical treatment of many conditions is chosen rather than the slower so-called medical methods of treatment. But not alone must surgery be congratulated on its direct curative results, but indirectly for the aid it has given to medicine in the direct observation of pathological processes and the information derived therefrom regarding conditions which were obscure. If surgery is indebted to medicine for the knowledge which enabled it to deal with its most formidable foe, it has repaid its debt by its contribution to pathology.

There are a few matters which I would like to allude to here, even if I digress from the strict sequence of the narrative, because of their importance in the treatment of disease.

First there is the great advance in our knowledge of the functions of the internal secretions and the many disorders which spring from their derangement. Since 1855 when Claude Bernard first showed their physiological importance there has been a continual advance. They have become part of our applied therapeutics. Hormone therapy generally is opening up a wide field in practical therapeutics.

Then there is the employment of the Roentgen rays, both in diagnosis and treatment, which has become a specialty and is almost indispensable in present day surgery.

The work of Crile in nerve-blocking and anoci-association promises to eliminate shock, one of the remaining dangers of surgical interference.

There are two other great advances connected with treatment of disease which will readily occur to you and which I can briefly allude to. I refer to the institution of trained nursing service and the wonderful development of hospitals. Both for clinical observations and examination, as well as for the regard due to precise hygiene, dietetic and aseptic measures the hospital and trained nursing were necessary developments of medical progress. Hospitals have, of course, been with us a long time, but the great development in their management and internal economy, and in their use by the great mass of the people makes a modern hospital quite a new institution.

The consideration of the work done by the medical profession in the prevention and treatment of disease brings us naturally to consider the broad question of the relation of medicine and social service. Today medicine holds a larger place in national life than at any time in history. Public health is, as I have said, a matter of national policy. The people have come to understand that health is their greatest national asset. Every state, every industry, every national movement, whether public or private, is conducted with a due regard to it.

In national economics we might easily point out the gain in the actually demonstrated increase in the longevity of the people. But such statistics would only tell a part of the tale; the value of medical progress in national economics is not to be measured by mere increase in longevity, but far more so in the improvement of the conditions under which individuals work and in their resultant improved personal economic value and efficiency. From an economic and social standpoint life is not of much use to the man who is not efficient in health.

The time is well within the recollection of those present when one commonly met in our streets the cripple, the blind and many others who evidenced their incapacity and who were either public or private burdens on the community. The consequences of disease were to the individual almost as bad, if not worse, than the disease itself. Today thanks to our more radical therapeutics, medical, surgical and preventive, one rarely sees evidences of disability. Disease is checked in time and efficiently treated and men are enabled to go through life and be efficient machines for the accomplishment of their allotted tasks. I say without hesitation that the vast increase in national economic progress, which the past one-fourth century has witnessed, not only here but wherever enlightened public opinion and legislation has kept pace with medical progress, has been due to the greater health efficiency of the people; and that it would not have occurred had such health efficiency been absent. It is more than a mere coincidence that the period of history which has witnessed the greatest commercial and industrial expansion, is coeval with that in which has been the greatest medical progress. Just as surely as strict regard to hygienic laws put into practice brought

about the triumphal accomplishment of the magnificent work of the Panama canal, just so surely in every walk of industrial life has the betterment of health and a more careful co-operation in hygiene by the people been responsible for the improved conditions. I therefore lay it down as a corollary that national prosperity and national greatness are directly dependent on national health, for this is true just as it is true and always was true that sickness, idleness and poverty are the progenitors of degeneracy and crime.

This is the service which enlightened medicine is rendering to civilization and social progress and this is the true measure of the value of its advance. Governments have not been slow to recognize the value of medical progress in national economics. Ever since the discoveries of Pasteur the question has inevitably been forced upon them. The *laissez-faire* methods of previous generations, the delegation of questions affecting health as private individual matters, has had to go; and the broad principle has been recognized, as a matter of state, that society must do for the individual what he cannot do for himself in the utilization of scientific advance for the preservation of health. This is the foundation for state interference in health legislation, quarantine laws, public health education and the establishment of health departments. In the United States the American Medical Association was the pioneer in the demand for the creation and maintenance of public health boards, and today there is not a state in the Union and not an important city without such a board, charged with the duty of public sanitation and the protection of public health. It is clearly evident that the organized medical profession is ever watchful that the best interests of the public are served.

But legislation alone does not suffice. The main point is that the people themselves must see the necessity for such legislation and must demand it. This is a matter of public education. The medical profession can only point the way. The people must of their own will follow it. They must see that health legislation is not a question of interference with liberty of action, that restrictions are for the public good, and that, even though sometime such restrictions may be considered as a hardship on individuals, the greatest good to the greatest number must be the principal on which all such legislation must be judged.

The people are awake to their responsibility in this matter and there is a growing recognition of the fact that public health is vitally connected with their economic life and happiness; and that its loss means economic dependence. All legislative enactments rendering punishable infringement of industrial hygienic regulations, insanitary housing and the adulteration of food, must be the direct demand of the people themselves. As I have said the medical profession can only show the way. The enforcement of health laws only proceeds to that point where an intelligent people co-operate with and observe them.

I finally come to the question of the physician himself. In this great advance of medicine has the physician advanced? I emphatically say that he has. New measures require new men and the physician of today is fully alive to his increased responsibility and importance and is fully equipped to meet them. We frequently hear it said that the old-time practitioner has disappeared. But though the old type of family physician has passed, he is replaced by a better type; and the position of the family physician today is more important than ever it was. Although the etiology of most diseases is better known there is still a very wide field for the study of the causes which favor or disfavor the course of disease. It is one thing to accurately diagnose a disease. It is another thing to know a particular patient's power of resistance to that disease and the immediate circumstances which in his given case affect that resistance. It is in this connection, and particularly with the many non-infective diseases of every day life, that the position of the family physician is paramount, and that he has the opportunity, which no specialist or operator can have, of daily observation of life and habits of his patients. Every circumstance connected with the patient is of importance—pleasures, occupation, food, luxuries, habits, climate, congenital or acquired defects, etc. The services of the pathologist or bacteriologist are not required here. It is essentially the province of the family physician and the results deducible from his observations are as important as those of the laboratory. And the family physician is, as I have said, equal to the circumstances. His education is better. There is no slipshod way today to the practice of medicine. Nor is there any chance of excusing himself from keeping touch

with developments. There is a multiplicity of high-class journals in which every phase of progress is brought to his immediate notice. Professional organization, better transportation and increased fraternalism give him frequent opportunity of exchanging views and widening his knowledge of others. Every facility of modern progress is utilized in giving a better service to the public. But perhaps more important still, the increased knowledge of the people regarding disease and its treatment demands the best qualified men and no other can succeed or be acceptable. Hence I again say emphatically that, great as had been the advance in every phase of scientific medical treatment, the practitioners of today are fully competent to deal with it and there is not a country district throughout the land in which men cannot be found acquainted with and competent to treat any disease with the best means, surgical or medical.

Moreover the necessity for the highest efficiency in the profession is by none realized more than by the profession itself. I need only allude to the successful efforts of organized medicine as represented by the American Medical Association in raising the standards of medical education, in the campaign for the closing of disreputable schools and in its ceaseless warfare against all quacks and medical pirates.

Ladies and Gentlemen: Never in history has the physician stood forth more worthy of public esteem and honor than today. His mission is high and his aims are noble. His work is arduous and he must be ever ready to sacrifice every tie, private and personal—aye even his life—in the call of duty. He is the servant of the people, unselfish in his efforts during public calamity or private grief, the friend who is ready, able, and willing to bring relief in your hour of trial. And his reward is at the best scant; often, too often, it is only his own consciousness of rectitude, the reward that springs from the satisfaction of a good work well done. All honor then to the men who have and who are devoting their lives not to selfish ends, but to making the lives of their fellows sweeter and better, and whose constant aim is that they may better be able to perform that work.

In conclusion though there are many phases of medical progress which the time at my disposal does not enable one to deal with or only

briefly allude to, yet I hope that the facts I have brought before you are sufficient to justify my claim that during the present generation greater advance has been made in every phase of medical science and art than in all the ages which preceded it and I venture to say that this era will be noted in medical history as the Golden Age of Medicine.

Great is the legacy which this generation leaves to the next. Let us hope that they will pass it on wisely husbanded and increased. If they equal or exceed the work of this generation it will only be by work, steady work, and preserving zeal; for as Longfellow beautifully says:

"The heights by great men reached and kept
Were not attained by sudden flight,
But they while their companions slept
Were toiling upwards in the night."

A CLINICAL AND EXPERIMENTAL STUDY OF POST-OPERATIVE VENTRAL HERNIA.*

WILLARD BARTLETT, A. M., M. D., F. A. C. S.
ST. LOUIS, MO.

It is with a certain degree of hesitation that one comes before you to discuss a subject which can be regarded in many instances as a reproach to the operator and an evidence of the fact that our art of surgery has not kept pace with the development of surgery the science.

It seems paradoxical, but we must admit that post-operative hernia is indirectly a product of advances in asepsis which allow frequent opening of the abdomen.

Two reasons influenced me in the choice of this, to some disagreeable, subject for my address. The first will readily become apparent to any one who attempts to look up the literature bearing upon post-operative hernia. Consult the great Index Medicus itself and you will be surprised to see how little has been written regarding it and how difficult it is to find that little. Just why this should be so, when the importance and frequency of the lesion are considered, I cannot say. A relatively large experience in the treatment of this malady

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and the interest awakened thereby furnish my second reason for today's choice.

It is well to state in passing that my consideration of this subject differentiates sharply between post-operative hernia, having a well defined ring with sac, and muscle paralysis with stretching as a result of nerve section.

My own interesting experience in the treatment of post-operative hernia embraces a study of seventy-four people on whom I have operated for this accident. In twenty-four cases the *original* operation was performed by me.

Out of the seventy-four we know definitely of success in fifty-seven of them; the time between their operation and when last heard from ranging from one week to nine years, an average of eleven months. In seven of these cases we have been unable to learn the result. Six were complete failures; in two of them a filigree was used; the overlapping method being employed in the remaining four instances. Ferguson,¹ who was a master of this subject, thought the overlapping of thinned out fibrous structures likely to give recurrence, in spite of the enthusiasm attending the use of the method.

The four following patients died: 1, a strangulated hernia, eight hours after operation; 2, a cancer of the uterus, a few weeks later; 3, a cirrhosis of the liver after four days; 4, a second cirrhosis of the liver died very suddenly eleven days after operation during my absence from the city.

Causes: In three cases vomiting was mentioned as a prominent factor and coughing in three others; drainage had been used twenty-three times. None were traceable to meteorism.

The time the patient had remained in bed following the original operation ranged from three weeks to five months, an average of seven weeks.

A binder had been worn from six weeks to two years, an average of eleven months.

The onset of hernia had varied from immediate up to four years, an average of one year after operation.

One of the most interesting observations which I have made in this connection is that there is a vast difference here as elsewhere between lesion and symptoms. For instance, one of my worst appearing recurrences is in a lady who

considers herself cured and constitutes one of my good walking advertisements.

A glance at the literature of the subject (involving a certain amount of repetition) impresses one with the fact that certain constant factors practically determine the occurrence of hernia after a laparotomy.

Tate² believes that post-operative hernia is much more common in fleshy women and in multiparae; where there is too long an incision or one that is unnecessary; where there is too much clamping, and after transverse division of muscle fibers. He also remarks that wounds do not unite well in very frail people.

V. H. Johnson³ gives the following factors in production of hernia following appendectomy: 1, long incision; 2, cutting off nerve supply to muscles; 3, incision made through muscle tissue; 4, closing incision with a single set of sutures in one layer; 5, packing the wound with gauze; 6, length of incisions is not more important than tissues through which they are made.

C. George Bull⁴ has observed the following causes of hernia after operation: 1, drainage (to be used only when absolutely necessary and then a small drain; after removal of same, stitch the ununited fascia); 2, wounds healing by granulation; 3, failure to bring fascia into proper apposition, resulting from method of suturing or tension; 4, division of nerve supply to muscles of abdominal wall; 5, vomiting and straining from any cause; 6, abdominal tension from flatus; 7, rapid accumulation of adipose tissue after operation.

Sprengel⁵ was chosen to discuss post-operative hernia as one of the principal subjects considered by the German Surgical Congress in 1914. He gave as his opinion that the following five factors were at fault: 1, tampon; 2, infection; 3, inaccurate suture and improper material; 4, post-operative injury (vomit, etc.); 5, physiologically incorrect incision.

Wolff⁶ considers gas to be in direct casual relation to post-operative hernia; hence the importance of its prevention after laparotomy.

J. H. Jacobson⁷ reports that out of seven-

2. Tate: Cincin. Lancet-Clinic, 1903, N. S., L., 583.

3. Johnson, V. H.: Jour. A. M. A., 1898, XXXI, 402.

4. Bull, C. George: Calif. State Med. Jour., 1905.

5. Sprengel: Jour. A. M. A., LXII, 1672 (Rev.).

6. Wolff: Cent. f. Chir. XXIX, 1289.

7. Jacobson, J. H.: Am. Med. Compend, Toledo, 1912, XXXVIII, 177-180.

1. Ferguson: Clinical Review, August, 1904.

teen cases of incisional hernia, seven occurred following operations for pus appendix and ten following median abdominal incision. In only two cases did a hernia appear where the original incision healed by primary union. It is more frequent where incision is made below the umbilicus, but very infrequent following gall-bladder or stomach operations even with drainage. This is due to difference in intra-abdominal pressure.

Nyatt and Buckner⁸ in five hundred and eighty-six abdominal sections report post-operative hernias in 20 per cent of cases which were sutured en masse; and in only 9 per cent where separate layers were sutured. They also state that hernias followed laparotomy in 40 per cent of cases where suppuration lasted two weeks and in 50 per cent where it lasted three weeks.

Lindenstein⁹ examined one hundred laparotomy patients three years post-operatively and found twenty hernias. None of them occurred where healing had been undisturbed by suppuration or tamponade.

Amberger,¹⁰ who examined one hundred and eighty cases more than a year post-operative found twenty-three hernias (12 per cent); sixty incisions of more than fifteen cm. gave 20 per cent hernias. There were more hernias after double than triple layer suture. A binder did not protect. Primary healing is the main thing. Secondary suture is advisable (in layers).

Sabaneew had 60 to 67 per cent hernia after open treatment of appendicitis; Brun in 68 per cent; Amberger, 40 per cent; Fehling, 54 per cent, and Pichler, 65 per cent.

Secondary suture has been of little avail. Pichler¹¹ writes that it succeeded only four out of ten times in the Mikulicz Klinik.

I personally do not believe that pregnancy is responsible for many post-operative hernias. Pressure of a wide uterine surface comes on a weak spot and there is no opportunity for wedge-like action.

No one seems to have proven that a binder prevents post-operative hernia, although it doubtless limits its increase in size.

With the above statistics regarding the line

of incision and infection in mind, I wrote to thirty-nine patients whose appendices I had removed in the presence of pus, through the McBurney gridiron incision, leaving a rubber drain in place in every instance. Twenty-four of these people answered my inquiry and of this number only two have hernias, while the status of two others is indefinite.

There is a glaring contrast between these figures and the foregoing in which through and through, drained, infected incisions were followed by hernias with startling regularity. There is no escaping the conclusion that a physiologic incision which splits muscle fibers longitudinally and tends to close up instead of pull open has every advantage.

During the past winter seniors of the Washington University Medical School have operated upon twenty-two dogs under my direction in an effort to determine certain facts relative to post-operative ventral hernia. The results of these studies will be published in detail later, it being sufficient for the present purpose to state that mere damage, no matter how extensive, to the abdominal wall of the dog does not produce hernia with any degree of regularity, if merely skin and peritoneum be sutured. In fact, no bulging at all has occurred in any instance in which the posterior rectus sheath alone has been left intact, demonstrating conclusively that post-operative hernia depends on two general factors: 1, weak wall; 2, *tendency to hernia*, something which was not produced experimentally. Clinical experience shows the same thing to be true in the human subject, since we find hernia occurring in those who have left the hospital well, but who are subject to increased intra-abdominal tension, due to obstruction in digestive, urinary or respiratory passages, and in others who strain at lifting, etc. Any attempt at cure must consider two factors: 1, removal of hernia tendency, and 2, repair of the abdominal wall. The hernia tendency is corrected previous to operation both by reducing the patient's intra-abdominal fat and intestinal contents. One short, plethoric man who came under my care exercised and dieted until he reduced his weight fifty pounds between the two operations. It was at the second sitting surprisingly easy to overlap the tissues, a thing which would have been utterly impossible at the beginning of his

8. Nyatt & Buckner: Old Dominion Jour. Med. & Surg., Richmond, Va., XV, No. 1, p. 24.

9. Lindenstein: Beit. zur. klin. Chir., Bd. LXI.

10. Amberger: Beit. z. klin. Chir., XLVIII.

11. Pichler: Beit. z. klin. Chir., 1902, Bd. 33.

pre-operative treatment. It is an excellent idea to put such patients to bed a few days before the operation, keep them on liquid diet, and practice liberal catharsis. This not only makes the plastic easier, but decreases the likelihood of post-operative meteorism. It is absolutely essential in this connection that a chronic cough be attended to; that any tendency to chronic vomiting or undue straining at stool be rendered improbable, and especially that obstructive conditions in the urinary passages be relieved before one considers an operation for post-operative hernia.

During the operation it will at times be necessary to reduce the tendency to hernia by decreasing the abdominal contents. This is a comparatively simple matter as far as the omentum is concerned, but may take us into extreme technical difficulties, as was the case a few years ago when I resected practically the entire colon, which "had lost its right of habitation." This operation was entirely successful, but will, of course, be very rarely necessary. As a matter of course, undue tension on a reconstructed abdominal wall is bound to result in failure of the operation. Not only this, it must be added that any interference with the movements of the lower ribs is likely to result in respiratory and circulatory derangement which will end fatally.

The prophylactic use of infiltration local anesthesia in a few of these operations has, in my own hands, I am sure, prevented coughing, vomiting, gas formation and urinary retention.

For purposes of treatment post-operative ventral hernias must be divided into three classes: 1, those in which the edges of the opening can be overlapped for a considerable distance in some direction; 2, those in which they can be made to come together in layer construction, and 3, those in which no approximation is possible.

The first two classes have long been treated satisfactorily, but the third opens up highly stimulating possibilities. It would lead us too far afield to review all the measures which have been employed in the operative treatment of the condition. It is sufficient to mention that a great variety of organs and tissues have been utilized in plugging the opening, while the writer

and others have devised filigrees and plates of metal to answer the same purpose.¹²⁻¹⁵

Much experience has convinced me that an operation which does not open the sac has certain distinct advantages. It enables one to use to the best advantage all scar tissue and sac wall that may be present. The technical difficulties are greatly minimized if no omental and visceral adhesions are taken care of, to say nothing of peritoneal closure. But the chief gain in not opening the peritoneum is seen in the greatly decreased likelihood of recurrence due to distension, vomiting, coughing and unrest; all of them expressions of the functional intestinal disturbance which I have seen follow extensive handling of these viscera. (Of course, it will be necessary in exceptional instances to open the peritoneal cavity for a pathological condition which is entirely independent of the hernia.)

Karewski¹⁶ retracts skin and fat from the aponeurosis and muscle, then makes an oval incision around the neck and 1 cm. from same. The unopened sac is pushed into the abdomen and the median edges of the fascial wound sewn together. If possible, the exposed muscles are sutured together, otherwise a filigree is formed of wire or silk and built up between the distal margins. He has operated upon thirteen people in this way (six median and seven lateral hernias). One died of nephritis; the others were cured from nine months to four years.

Schültze¹⁷ has used the Karewski operation and most successfully. The peritoneum was not opened, but an oval incision around the ring and through anterior rectus sheath made.

Lindqvist¹⁸ uses the Maydl-Lennander operation, which is the same as the Karewski, except for "relaxing" incisions parallel to the axis of suture line through rectus sheath.

But may we not go further than is done in a simple plastic of this kind and by free transplantation lend additional strength to the affected locality. Now for the possibilities in this direction. There are unauthentic reports of free tissue transplantation out of the seven-teen hundreds, but the first operation of the

12. Bartlett, Willard: *Annals of Surg.*, May, 1903.

13. Bartlett, Willard: *Interstate Med. Jour.*, X, No. 9, 1903.

14. Bartlett, Willard: *Jour. A. M. A.*, Sept. 8, 1906.

15. Bartlett, Willard: *Surg., Gyn. & Obst.*, March, 1908.

16. Karewski: *Deut. Med. Wochensc.*, No. 53, IV, 1904.

17. Schültze: *Monats. für Geburtsh. und Gyn.*, Bd. 13, 1906.

18. Lindqvist: *Zentralb. für Gyn.*, No. 34, 1910.

kind which is above suspicion was done by v. Bunker, when he reconstructed a nose from skin of the thigh. It is natural to suppose that every tissue possibility has been utilized in the effort to cover defects of the abdominal wall, though distinctly the most successful is that of Kirschner,¹⁹ who is the father of free fascial transplantation. He prefers fascia lata because: 1, it is easy to get; 2, there is an inexhaustible supply; 3, it is strong and inelastic; 4, it shows marked tendency to heal in, and 5, it is easy to adapt to any shape. With the appearance of this idea the surgery of abdominal wall defects may be said to have taken on an entirely new aspect.

In the most exhaustive review of fascial transplantation which has appeared to date, Kleinschmidt²⁰ states that fascia retains its characteristics when transplanted only when it has a function to fulfill. He considers it our most ideal material for repairing of post-operative hernia if layers of wall cannot be united.

Mann²¹ writes the richer its blood supply, the harder a tissue is to transplant with success. Hence fascia is ideal because lymph percolation insures its life. For a median hernia he overlapped the two anterior rectus sheaths and at a secondary operation filled this defect with fascia lata with complete success.

Rittershaus²² reports a case where a flap of fascia lata was sewn into an abdominal wall defect of large size. This had resulted from several laparotomies and was complicated by a fecal fistula. Still the flap healed into its new bed and at the end of six weeks the wall was perfectly solid.

Warschauer²³ reports ten transplantations of fascia lata in the treatment of defects of the abdominal wall. The results were most satisfactory.

Kirschner²⁴ details the first cases in which he did his free fascial transplantation on the human subject. Among them are a number of abdominal wall repairs with single and double graft, with success in clean and infected cases.

Goldman²⁵ repaired with fascia lata one defect occurring after acute purulent appendicitis.

Soboleff²⁶ covered with fascia lata an abdominal wall defect 8x5 cm. No hernia followed in spite of coughing. The patient died after two and one-half months. The fascia was found unchanged microscopically.

Enderlin²⁷ demonstrated a patient before the Wurzburg "Arzteabend" whose abdominal hernia had been repaired by fascial transplantation.

Riese²⁸ relates a case of abdominal hernia following suppuration which he cured by transplantation of fascia lata.

Schmid²⁹ reports three gynecological cases in which fascia lata was used to fill up defects of the wall, which could not be obliterated by approximating their borders.

A further proof of the value of tissues similar to fascia lata in this connection is stated by Cushing,³⁰ who has had no fungus cerebri after tumor operations, due, he thinks, to closure of galea with interrupted silk sutures.

Kornev³¹ gives an extensive report of experimental and clinical work of various kinds done in fascial transplantation. He concludes that defects of the abdominal wall can be safely so treated.

In the absence of equally convincing evidence in support of other plastic methods, one must concede a high value to free fascial transplantation for the abdominal wall defects involving so much tissue loss as to render liberal overlapping or layer reconstruction impossible.

My animal experimentation tends toward the conviction that the best possible operative treatment of the large ventral hernias (where the edges of the ring cannot be approximated) is: liberal freeing of the neck of the sac from skin and fat; an oval or circular incision clear around the same and at a liberal distance from it, extending through the fascia encountered; inversion of the unopened sac; suture over it of the inverted, proximal, circumferential fascia, and free transplantation of a flap of fascia lata large enough to fill in the defect produced by the oval or circular incision around the neck of the sac.

The after-treatment will concern itself chiefly with coughing, vomiting, defecation, passage of

19. Kirschner: *Beit. zur klin. Chir.*, Bd. 65, 472.

20. Kleinschmidt: *Ergebnisse der Chir. & Orth.*, Bd. 8, 1914.

21. Mann: *Ann. of Surg.*, 1914.

22. Rittershaus: *Deutsch. Zeit. f. Chir.*, Bd. 110, 699.

23. Warschauer: *Deutsch. Zeit. f. Chir.*, Bd. 122, 67.

24. Kirschner: *Arch. fur. klin. Chir.*, Bd. 62, 883.

25. Goldman: *Zentralb. fur. die gesammte Chir. und ihre G.*, Bd. 3, 85.

26. Soboleff: *Zentralb. f. d. gesammte Chir. u. ihre G.*, Bd. 3, s. 179.

27. Enderlin: *Muench. Med. Woch.*, 1911, No. 12, s. 658.

28. Riese: *Muench. Med. Woch.*, 1911, No. 30, s. 1639.

29. Schmid: *Gynackalozische Rundschau*, Bd. 7, s. 429.

30. Cushing: *Jour. A. M. A.*, Jan. 16, 1915.

31. Kornev: *Beit. zur. klin. Chir.*, Bd. 85, s. 144.

gas and urination, to say nothing of muscular violence; in fact, every form of insult to the wound and the sutures. Of course, the convalescent patient is to be warned against occupation or recreation which unduly raises intra-abdominal tension.

From the foregoing it will have been seen that the causes of post-operative ventral hernia, as far as they come under our control, are: 1, incisions out of keeping with anatomical and physiologic principles; 2, improper wound closure; 3, needless drainage and tamponade. There is also, 4, increased intra-abdominal (post-operative) tension, which we can influence very largely and, 5, wound infection, for which we will rarely be to blame in this age of technical refinement.

This malady can at times tax the skill of the nicest *operator*, and if ideal as well as constant results are to be expected, the problem must appeal to the *surgeon* in the broadest meaning of the word. Any good mechanic can restore the integrity of the wall, but it will require a thinker to anticipate the conditions which disrupted the original scar.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

ROBERT H. BABCOCK, M. D.,
CHICAGO.

There are few tests of diagnostic skill greater than the detection of latent and incipient tuberculosis of the lungs and for the reason that evidence of the disease may be very obscure, none is more worthy of careful study by the general practitioner. So much reliance has come to be placed on the use of tuberculin in the detection of this disease that in doubtful or suspected cases physicians quite generally resort promptly to the von Pirquet or Moro test and when this is positive it is regarded as conclusive. Hence it may not be out of place to remind ourselves that a positive tuberculin reaction means only the existence somewhere in the body of a focus of tuberculosis and not that this is necessarily in the lungs. Consequently a positive skin test is to be taken as indicating disease of the lungs only in conjunction with symptoms and physical signs pointing to involvement of the lungs.

Therefore on being asked to contribute this paper I thought it best to confine my remarks to the consideration of diagnostic data elicited by a physical examination. This is not because of any unusual skill in this direction but because I deplore the apparently growing tendency to rely on the tuberculin skin test to the neglect of other often more useful measures. But even in thus dealing with the subject I shall attempt mainly to emphasize certain points which some thirty years of experience have convinced me are especially valuable in the physical exploration of the chest.

First let me emphasize the fact that in the overwhelming majority of cases the initial lesion as regards the lung is to be found in the posterior and not the anterior aspect of the apex. Accordingly in percussing and auscultating the chest one will do well to direct attention first to the supra-scapular regions, for when, according to my experience, the infra-clavicular region is involved or reveals evidence of the disease this latter has passed from the stage of latency or incipency to that which may be called early, perhaps, but no longer, beginning tuberculosis.

In the very beginning of lung involvement the focus is quite likely to be so small as to yield no positive dullness or at most but extremely indistinct loss of resonance, and yet if very light percussion be employed at either apex alternately the trained ear may usually detect a slight but appreciable difference in the pitch and intensity of the note over a circumscribed area often in the middle portion of the supra-scapular region. Not seldom also one can determine a slight retraction of the affected apex or may even appreciate a sense of slight resistance imparted not to the pleximeter but to the striking finger.

At a later period of the disease owing to the tendency of it to spread downward along the inner border of the lung dullness is found in the upper part of the inter-scapular space and in front adjacent to the margin of the sternum. At the same time partly in consequence of shrinkage of the apex and partly because of tuberculous deposit in the tip of the upper lobe percussion elicits impaired resonance directly above the clavicle. But in all cases of incipient involvement of the upper lobe the percussion stroke should be lightly made, for otherwise the vibration imparted to the underlying parts may ob-

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seure the slight loss of resonance belonging to the limited localization of the infection.

French writers in describing the signs of this very early stage of the process lay particular stress not on loss of resonance but on modification of the respiratory sound. This seems to me attributable to the fact that extremely gentle percussion alone can detect minute changes in lung density and that most examiners therefore are apt to overlook them. But just as the loss of resonance is in some cases almost imperceptible so with the modification of the breath sounds produced by incipient changes in the lung. At this stage auscultation detects, it may be no rales but merely a roughness or harshness of respiration which ordinarily is more marked during inspiration than expiration. In order to appreciate this roughness of inspiration careful and often repeated comparison with the breath sounds of the opposite apex at a corresponding point is necessary. Even then the difference may be so slight as to leave one in doubt unless this be considered in connection with other indications to be mentioned later on.

We should bear in mind that in the very incipency of this affection tuberculous deposits may exist without associated alveolitis or softening and hence rales are not likely to be heard unless, perchance, there is overlying pleuritis when the breath sounds may possess a parchment-like quality or creaking character. In some cases a fine sibilus may be detected with the first deep inspiration and if confined to the apex in which slight loss of resonance seems present this is very significant. At a later period in the process but still early, fine crepitant rales generally develop which are brought out most distinctly by a forced inspiration or, still better, by cough. But with reference to this cough I should like to say that to develop these rales or signs of moisture as they are called a single short cough should be made at the close of expiration and before a succeeding inspiration is made.

Another procedure regarded by many as of much value is the study of the loud and whispered voice over the suspected apex. According to the laws of sound conduction the vibrations of the voice should be conveyed to the ear of the auscultator more distinctly over even a limited area of consolidation than in the surrounding parts. Consequently Scwall of Denver has laid

great stress on the distinctness of the whispered voice in the recognition of a tuberculous focus and as it seems to me very justly. It certainly may serve to confirm the impression obtained by detection of scarcely appreciable changes from what are considered normal percussion and auscultatory findings. This whispering pectoriloquy is assuredly of far more value than is the study of the loudly spoken voice. A deep and sonorous male voice produces a too great vibration, while a thin, high, female voice generates a too feeble vibration to enable the examiner to draw definite conclusions from a study of the two apices.

The same objection holds true according to my experience of pectoral fremitus by palpation of the chest. Nevertheless in occasional instances it has seemed to me that I have been able to detect an increase of fremitus over even a small area of tuberculous infiltration in one or the other apex behind where tubercles first develop and that by very delicate percussion I have been able to elicit slight impairment over the area.

Thus far I have dwelt on the importance of careful percussion and auscultation because they are our chief means of physical examination in cases of latent or incipient pulmonary tuberculosis, but there are other accessory signs which serve as aids in the diagnosis of this often obscure malady. These comprise certain visible differences in the aspect of the two apices, such as diminished inspiratory expansion and flattening of the infraclavicular region on the affected side, wasting of the shoulder-girdle muscles noticeable especially at the back, slight thinning of the skin, to which particular attention has been called by Dr. Clarence Wheaton of this city, and general loss of weight and pallor. Subordinate as these are to changes found by percussion and auscultation, they yet offer corroborative testimony and hence should be looked for in completing the chest examination.

There now remain the constitutional effects of the infection, which are phenomena of protein absorption and make up the symptomatology in contradistinction to the physical signs that have been thus briefly considered.

Of these constitutional manifestations of the disease elevation of body temperature seems to me the most significant and yet even this cannot be taken by itself as diagnostic. Fever, like

cough and acceleration of the pulse may be a symptom of so many non-tuberculous conditions that it must be regarded as only one, though an important one of several manifestations which combined make up the sum-total of diagnostic data. The really significant feature about the pyrexia of incipient pulmonary tuberculosis is its constancy within quite narrow limits. Its range is as a rule between 99.5 F. and 100.5 F., although this may be modified by exercise and physical disturbances, and, as every one knows, the thermometer usually registers higher in the afternoon or early evening. It may be remittent in the early morning but so long as the lung is not breaking down the temperature does not show marked and abrupt fluctuations. Moreover in this incipient stage the individual rarely complains of chills. Indeed, he may not be conscious that he has any fever. As the disease progresses, however, he becomes conscious of a sensation of heat in the afternoon or evening. In some cases nocturnal subsidence of fever is accompanied by more or less perspiration, but profuse sweating usually attends the more advanced stage of the disease.

Tachycardia is generally present at this time but there are no exact figures that may be given as in the case of the temperature. In many of these individuals there is a pronounced neurovascular excitability termed *erethism* which sends up the pulse to 120 or over upon such disturbing conditions as the physical examination. Yet even at rest, both physically and mentally, the heart's rate is unduly rapid and out of proportion to the degree of pyrexia.

It goes without saying that the heart is generally found to evince no signs of disease, but the blood pressure is lower than normal as a rule. Occasionally an individual is encountered in whom the blood pressure is normal or even somewhat higher than normal, but as a general proposition it may be stated that hypotension may be taken in association with other suspicious data as corroborative of the diagnosis of pulmonary tuberculosis in this early period of the disease when diagnosis is often very difficult.

With most practitioners it has become almost a routine practice to make a blood examination in cases displaying an elevation of body temperature and hence it is well to do so in suspected pulmonary tuberculosis. This may be of some assistance in arriving at a diagnosis,

but blood changes are not so pronounced or characteristic as was formerly thought by me. The pallor so usually conspicuous in this disease, even in an early stage, is found to bespeak less anemia than might be supposed. In most instances there is a reduction in the hemoglobin out of proportion to the decrease in red cells and hence there is said to be a chlorosis or pseudo-chlorosis in pulmonary tuberculosis. This of itself is, however, of very slight significance since among city dwellers chloro-anemia is not at all uncommon. Of rather more value, perhaps, is a count of the leucocytes and yet even this is not always as helpful as I once believed. Formerly it was my opinion that a leucopenia rather than a leucocytosis existed in the incipient stage, but the view now generally held is that the white cells are about normal or are slightly increased, numbering around ten to twelve thousand. If they are much in excess of these figures they are held to indicate an added infection or some other non-tuberculous infection provided lung findings are indefinite. In this connection it should be stated that Arneth's studies show not only an increase of the polymorphonuclear elements but a relative excess in those neutrophyles which contain one and two nuclei rather than more. On the whole, therefore, it may be said that the examination of the blood is of very minor although of some importance in the very early diagnosis of this disease.

Cough is probably the symptom which oftenest arouses suspicion on the part of the physician as well as of the patient or friends. This is so commonly a result of irritation within the throat or even nares and may be a symptom of so many other conditions that taken by itself and apart from loss of weight and strength, etc., I must confess that until careful investigation of all other possible causes has convinced me of their absence I am slow to regard cough as an indication of lung tuberculosis. It is quite another thing, however, when the individual has expectorated blood or admits decline in strength and weight. Cough is, of course, an early symptom and may very justly arouse apprehension, but the point I wish to make is that it must be supported by other data before it should be regarded as diagnostic in the incipency of which I am now speaking.

Loss of weight is often a very early symptom and may precede the development or recognition

of other constitutional effects and in a person with a history of exposure to the infection should arouse suspicion and lead to a careful examination. But habitual under-weight, although suggestive of latent tuberculosis is sometimes a family characteristic and may exist without any discoverable evidence of the disease in question.

No single symptom in the stage of closed tuberculosis when tubercle bacilli are absent is sufficient for a diagnosis of pulmonary tuberculosis. It is the combination of several symptoms together with physical signs in the lungs that enables the physician to arrive at a definite conclusion. Therefore decline in weight and strength, slight cough even if without expectoration, daily rise in temperature, acceleration of the pulse, possible hypotension, pallor with perhaps slight increase of the leucocytes and at one apex faint loss of resonance and roughness of the inspiratory murmur over the area of impairment, all these would almost certainly make for latent or incipient pulmonary tuberculosis. Yet not all of these data may coexist and when physical signs are equivocal one may and should resort to tuberculin or the Roentgen-ray. A positive skin reaction would be conclusive, but a single negative test should be regarded with reserve and lead to further observation and a repetition of the skin test or to the hypodermic administration of tuberculin.

As regards the disclosures of the x-ray it may be said that other conditions than tubercular deposits may impede the passage of the ray. Yet should the fluoroscope or skiagraph reveal scattered deposits over a circumscribed area at an apex where suspicious physical signs exist, it will if certain constitutional symptoms exist serve to render conclusive the diagnosis of lung tuberculosis.

77 E. Washington street.

WHAT CONSTITUTES A PROPER CARBOHYDRATE AND PROTEIN DIET IN THE TREATMENT OF THE TUBERCULOUS.*

JOHN RITTER, M. D.,

Physician in Charge of the Rush Medical College Ambulatory of the Municipal Tuberculosis Sanitarium.

CHICAGO.

To bring about an arrest of the tuberculous process, to restore the tuberculous individual to

his former self and to make him again an efficient working unit requires the co-ordination and harmonizing of four essential and indispensable factors, namely, (1) an abundance of fresh air and out-of-door life, (2) sufficient rest, to conserve body energy, improve the appetite, lessen waste and favor repair, (3) the great psychological element, ease of mind, and (4) a wholesome nutritious diet, commensurate to the patient's physical condition necessary to repair the daily waste and to improve both body and mind. We will now consider a little more in detail this fourth factor, particularly its relation to food intake, tissue metabolism and waste output. In taking care of a tuberculous person we are usually very particular in giving instructions for out-of-door sleeping and living, the open window treatment, for much rest in the recumbent position, to take all the rest possible, not to worry, to take things easy, above all to take the prescribed medicine with religious regularity. In the giving of these rules we are very precise but somewhat hazy and indefinite when we give instructions as to diet. The patient is generally told to eat many eggs, to drink much milk, to eat much fat, butter, bacon, oils, eat all you can; it is eat, eat, eat, but not how to eat, what to eat, when to eat. It is hardly necessary to state that for the arrest of the tuberculous process the factor of diet is by far the most important, this fact has always been recognized ever since it has been shown that tuberculosis is a curable disease. Tuberculosis, as you know, is found in all walks of life, from very early infancy up to ripe old age, but it is more especially a disease of young adults and in these various conditions and ages a properly suited and regulated regime will result in more good than to feed young and old, febrile and afebrile, acute and chronic, active and passive, children and adults the same daily rations, the same stereotyped food.

It is much to be deplored that concerning the question of diet there still exists so great a diversity of opinion. Dietitians at many of the tuberculosis sanatoria of this and foreign countries, where ample facilities are offered to make a thorough study of this question, show a most extreme variation in the dietary regime and are not by any means a unit.

Let us take a hasty survey of the average daily dietetic table which is usually given as being

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ample to comfortably maintain the balance between carbohydrate, fat and protein metabolism in the healthy, and then let us compare that with the various diet lists in use at different native and foreign sanatoria.

It has been estimated that the normal requirements of protein, fat and carbohydrate intake for a healthy individual weighing about 150 pounds and while at rest, approximate close to 3,000 calories per day; for light work it may be increased to 3,500.

Proteins, 4 ounces (120 grams) equals 480 calories.

Fats, 2 ounces (60 grams) equals 540 calories.

Carbohydrate, 17 ounces (500 grams) equals 2,000 calories.

Total, 3,020 calories.

Now in looking over the diet list of 19 sanatoria we find a variation in calories from 5,500 the extreme of one to 2,140 in the opposite direction. The carbohydrate intake in one is given as 2,100 while in another 560 calories satisfies, fat in one 2,200 calories against 820 in another and protein is given at one in 1,200 calories while another is satisfied with a daily intake of only 370.

In comparing these different dietary tables it is hardly conceivable that on the one hand, with a large intake of carbohydrates, fats and proteins representing a high calorie value, and on the other given only about half that amount with low calorie units, one being typical of overfeeding and the other of underfeeding, that the tuberculous individual's chances for the arrest of his diseased process can be alike.

It is true that in a healthy individual the usual daily protein intake is generally sufficient to maintain the balance between tissue metabolism, between waste and repair, and perfect health may even be sustained over long periods of time by subsisting on a diet consisting of food of very low nitrogenous elements, but it is vastly different in individuals suffering from pulmonary or from any other forms of tuberculosis where tissue waste is out of all proportion to the **normal**.

You are all familiar with the prognostically different picture of pulmonary tuberculosis in the young and in the old. In youth, mainly between the ages of 10 and 25 tuberculosis often assumes a malignancy, running a rapid, a pro-

gressively down-hill course, while on the other hand as the tuberculous individual reaches the age of 35 and beyond the disease usually assumes a slow, a more mild, a more benign form. Tuberculosis is a distinctly lymphoid disease, and the tubercle bacilli flourish most luxuriantly upon this most favorable nutrient soil. It is for this reason that the bacilli grow and multiply with great toxin production in the young in which lymphoid tissue is usually so abundant, finding it a most propitious soil for their growth, while in advanced life, when fibroid tissue is beginning

to or is already predominating, a less nutrient soil is not so favorable for the growth and development of the bacilli, in consequence of which toxin production is held at a very low point, the disease usually following a very slow and quiet course. Another very important reason why tuberculosis assumes a more malignant form in the young man than in the old may undoubtedly be found in the vast difference existing between the nitrogenous output of youth and the aged. In the young, protein metabolism usually reaches its highest point; the burning-out process of nitrogenous material is almost complete resulting in the formation of urea as its terminal or end product. With advancing age the process of nitrogenous metabolism does not reach so high a point, does not fully obtain to the formation of urea, terminating in the formation of uric acid. But uric acid, the end product of protein catabolism, has been proven to inhibit the progress of the tuberculous process and very materially to influence the growth of the tubercle bacillus, but in the formation of uric acid, fats and carbohydrates take no part; it is nitrogenous materials, albuminoids and proteins alone that can be utilized.

In treating a great number of cases of pulmonary tuberculosis it is not surprising to find as a complication very frequently an accompanying diabetes mellitus usually running a very rapid course and though the diabetes predisposes to tuberculosis, tuberculosis as a rule does not predispose to diabetes. Sugar as a normal constituent of the blood as a glycemia, is found in most healthy individuals in proportion to 0.06 to 0.1 per cent and many most careful and accurate observers have demonstrated that in the tuberculous there is a strong tendency to an increase of blood sugar, a true hyperglycemia. Now very

exact experimental research has also demonstrated that media containing glucose form a most favorable nutrient soil for the growth of the tubercle bacillus and such a conducive soil is usually to be found in the tuberculous organism when the blood sugar is above the normal, when a hyperglycemia is present, besides, this excess of circulating sugar has a very detrimental effect in the lowered body resistance. A hyperglycemia occurs quite frequently in pulmonary and in many of the other forms of tuberculosis, particularly in the presence of high fever and it has been estimated that it is present in over 50 per cent of all cases. The presence of sugar in the blood over the normal amount, is well known to greatly favor the production of urea and not of uric acid. (Tuberculosis and diabetes have another point in common, the favorable influence of the diseased process by an increase of the urates in the urine.)

Another fact has long been recognized by the profession, namely, that diabetes and gout have a directly opposite influence on the tuberculous process, that while diabetes favors and accelerates this condition and the growth of bacilli, gout shows distinctly an inhibiting influence on the disease. The different effects of diabetes and gout on the growth of the tubercle bacillus has been clearly demonstrated by inoculating glycerinagar bouillon cultures in separate tubes, to one of which had been added blood from a diabetic and to another that obtained from a gouty patient, with live virulent tubercle bacilli of the human type. This experiment showed conclusively a most vigorous and luxuriant growth in the tube containing diabetic blood but the tube on the other hand to which the blood from a gouty person had been added showed a perceptible retardation and inhibition of bacillary development. That protein metabolism has a positively inhibiting influence on the pathogenesis of tuberculosis has been repeatedly demonstrated by feeding infected guinea pigs large quantities of nitrogenous food when it was observed that they develop a greater resistance against the progress of the disease than is noticeable in control animals, carbohydrate metabolism on the other hand hastens the tuberculous process, the disease running a more severe and rapid course, and guinea pigs fed on sugar succumb earlier to

the disease than the non-sugar-fed control animals.

Tuberculosis is often spoken of as the disease of the poorer classes and that generally is attributed to living in close quarters and to a lack of fresh air, yet in the small cities, in villages and even in the country districts where fresh air is very abundant and most inhabitants live much out of doors, tuberculosis, per capita, is quite as prevalent as in the larger cities and the cause of this can usually be referred to the large carbohydrate intake. In villages, in the country and the poorer districts of the cities it will be found that carbohydrates, like sugar, bread, potatoes, molasses, cereals, etc., constitute the chief articles of diet, meats are but little consumed and other animal proteins in the form of eggs and possibly milk are occasionally used. Among the richer classes, so-called better informed and instructed, who are consuming much proteid in the form of meats, eggs, fish, cheese, milk and such articles of diet rich in vegetable protein as beans, peas, lentils, etc., show a stronger tendency to lessen both the tuberculous morbidity and mortality. Comparative pathology, as you all know, has long taught that meat eaters seldom succumb to tuberculosis.

In this connection it may not be irrelevant to direct attention to a very interesting point in this tuberculosis problem, namely, the relation of tuberculosis to pregnancy. Recently in a most interesting address before the Robert Koch society of this city, two leading obstetricians and gynecologists clearly pointed out that during the child-bearing period, that is between the ages of 15 to 45, if pregnancy is complicated by tuberculosis, that the death rate in the young pregnant women is very much greater than when the same complication exists in women of more mature years, and that the patient's chances for arrest and cure of the tuberculous process are very much better the closer the pregnancy occurs towards the menopause. These facts can be greatly accounted for by the variations in the carbohydrate and protein intake during these different ages. We notice, for instance, that in the younger women the tuberculous process usually pursues a more rapid course, the pulse rate is somewhat faster, fever is generally high (heart fast), etc., but above all will it be observed that the diet consists chiefly of carbo-

hydrates and candies, cakes, sugar, molasses, ice cream, sweets, etc., constitute her chief articles of food. (As has been pointed out above, the excess of carbohydrate in the tuberculous, especially with high fever, tends to the production of blood sugar, a hyperglycemia, furnishing thereby a most favorable nutrient soil for bacillary growth and extension of the diseased process, at the same time an increase of nitrogenous waste material bringing about the production of urea as its end product.) On the other hand we see that in the elderly pregnant the disease is usually not so active, usually pursuing a milder course, but most particularly we observe that with mature age there usually comes a complete dietary change and carbohydrates now give way to fats and proteins either vegetable or animal, and in place of sweets as in former years she now yearns for rye bread, wheat bread, all containing a high protein constituent. Meats, fish, eggs, cheese, milk and cream, nuts, beans, peas, etc., constitute her chief meals, all of which tend to make body energy, storing up in the blood, not sugar, a good nutrient material, but the product of incomplete nitrogenous metabolism, uric acid, which is most unfavorable to bacillary growth.

It is a well-known truism in practical medicine that arthritic, rheumatic and podagric patients extremely seldom suffer from pulmonary tuberculosis, whereas diabetics very frequently succumb to the disease and this is most likely because in the organism of the former there exist a poorly specialized soil for the growth of the tubercle bacillus while in the latter highly favorable media are present. Now, in the treatment of rheumatism and gout, rest, chiefly compulsory, constitutes the principal therapy. The main influence of the rest cure on the tuberculous is the instituting of an artificial gout treatment, rest and quiet. We all know that this is a great factor in arresting the tuberculous process, for it favors the assimilation of food, lessens the loss of vital energy, conserves body strength, slows the action of the heart, lowers body heat and gives rest to both body and mind; in addition, it greatly favors the production of uric acid and if to the rest treatment a sufficient protein diet be added the ideal conditions which favor the arrest of the tuberculous process are given, conditions which supply a poorly nutrient soil for bacillary growth. A noted

phthisiotherapist once stated that it would be a great blessing of every tuberculous patient could be made arthritic or gouty; moreover the favorable influence of the tuberculous process in the rheumatic and gouty diathesis may be directly traceable to an increase of the uric acid content in the urine (and then again the gouty is usually advanced in life when uric acid is the usual end product).

In order to outline a proper dietetic course, to estimate the necessary food values for each case, it will be indispensable to individualize and make a thorough study of each patient's needs. Every patient's requirements in carbohydrates, fats and proteins ought to be most carefully ascertained, so that the daily amount of intake does not exceed the individual's tolerance and proteins should constitute a fair proportion of this advised diet but not more than the organism can take care of.

In the treatment of tuberculosis it may often become necessary, in order to supply the immediate wants of the economy, to increase the nitrogenous element but in many instances it requires a great deal of good judgment, not to go beyond the patient's protein tolerance. Nitrogenous food intake relative to tissue metabolism has been given very much attention but the over intake, that over and above the necessary tissue waste and repair, has not received the observation it desires. Too much protein intake causes either too much renal work or the unutilized nitrogenous material may be the cause of intestinal putrefaction and disturbances, followed by toxin absorption; hence a wholesome and generous diet, consisting of carbohydrates, fats and proteins, in such varying proportions, in amounts sufficient and suitable, just like the patient enjoyed when he was still in perfect health, will be found the most serviceable and appropriate in his diseased condition. It should be allowed with the same regularity and prescribed intervals as in health, at meal times only, giving nothing between meals. Thanks to a better understanding of the underlying principles which govern the processes of this disease, the pendulum has swung back and forced or over feeding and stuffing is now obsolete, but we must be guarded not to go to the opposite extreme and advocate underfeeding as the panacea in the tuberculosis problem. In the dietetic treatment particular

attention must be paid to the conservation of the digestive integrity of the stomach and intestinal tract, constantly bearing in mind that in health the gastro-intestinal organs offer the greatest protection against diseases of the lungs and that the digestive apparatus also offers the first aid and is chiefly to be relied upon when the lungs are diseased.

Therapeutically then it may be stated that an increase of nitrogenous material in the diet of the tuberculous may be of undoubted value but we must not lose sight of the fact that this must be kept within the patient's albumin tolerance, that a high protein diet over and above that used in tissue metabolism may cause in the intestines a rapid bacillary increase, intestinal putrefaction with toxin production and toxin absorption, and that this intestinal autointoxication is usually proportional to the nitrogenous intake.

25 East Washington street.

TUBERCULOSIS OF THE LARYNX.*

J. HOLINGER, M. D.,
CHICAGO.

The pathology of laryngeal tuberculosis, the symptoms, the course, the prognosis and therapy depend mainly on the general condition of the patient, particularly on the condition of his lungs. It is, however, questionable whether we are justified in considering it under all circumstances as a secondary disease to tuberculosis of the lungs; in other words, there are few, if any, cases known where the lungs were free from tuberculosis and remained so. In 1902 and 1903 I observed such a patient, whose larynx suffered from microscopically diagnosed tuberculosis, yet he had no fever, no dullness or rales over his lungs, no bacilli in his sputum; in other words, in whom at the time no affection of the lungs could be diagnosed. Yet in 1905 he died of a very fast progressing tuberculosis of the lungs. His larynx remained cured to the end. The only case of apparently primary tuberculosis of the larynx observed by the writer took such a course later on as to make it highly probable that an undiagnosed and undiagnosable focus of the disease existed at the time of observation.

In the large number of cases with fair general condition and slowly progressing or even stationary tubercular disease of the lungs, the symptoms of hoarseness and pain in swallowing are well known. Not so well known is the changeability of these symptoms, so that for days and weeks they seem to be entirely absent, so that the patient and the doctor think the disease cured. An examination reveals the great extent and destruction caused by the disease. This is a warning that the larynx of tubercular patients ought to be examined much oftener. Early discovered lesions give a better prognosis and better results of treatment. Furthermore, it is a fact that the elimination of a focus in the larynx has a good influence on the course of the lung trouble.

The diagnosis is usually not difficult. The subjective symptoms are pronounced. The objective examination by direct and indirect laryngoscopy reveals the swellings or ulcerations, which may be found extending over the whole of the larynx, or, more frequently, over certain parts, the rear margin of the entrance of the larynx, or over the vocal cords, the epiglottis, or the space below the glottis. The sequence with which the localities of predilection are named is of importance. In the first place, the rear margin of the entrance of the larynx is given. Infiltrations of this part were often found when all the other parts of the larynx were free. Swellings of this part were also found combined with affections of other parts, for example, of the vocal cords. Whenever, in such a case, the question of differential diagnosis from syphilis or carcinoma comes up, the infiltration of the rear part of the margin of the entrance of the larynx speaks in favor of laryngeal tuberculosis. This point is so much more valuable as it will be found to hold good, especially, in early cases, when the differential diagnosis is often at the same time difficult and important. Of course, the other means of diagnosis, von Pirquet's test, Wassermann's test, microscopical examination, must not be neglected.

To illustrate some unusual features, the following history is given:

Mr. Z., fifty-eight years, has lost several brothers and sisters from consumption. He is not very tall or strong. He has been hoarse the past year, absolutely aphonic for five months, and has complained during the last two weeks of difficulty in breathing.

*Read before the Chicago Laryngological and Otological Society, November 11, 1914.

Otherwise, he feels perfectly well, and has not lost a day in years from his business. Examination of the larynx was easily performed and showed the cavity of the larynx concentrically narrowed to the size of a thin pencil, by a hard swelling of the whole wall. The vocal cords could not be seen. The walls were irregular, and of the same color as the pharynx—pale pink. The microscopic examination of a piece of the wall gave the diagnosis of inflammatory new formation. This finding was unsatisfactory. A larger excision with a Landgraf double curette was pronounced typical carcinoma by another pathologist. At the same time the condition of the patient improved under kalium iodid. Another specimen finally was pronounced tuberculosis, with scant but unmistakable tubercles. The wound left by the different excisions healed promptly and completely. Therefore, the curette was used freely on both sides, and on the rear wall, until the normal width of the larynx was reached. The vocal cords were normal as to color and configuration, the left one slightly paralyzed, but the voice at once became clearer. The patient made a quick recovery and was well for several years; then he developed tuberculosis of the lungs. The voice remained clear up to a week before death, according to information from his daughter.

The first point of interest to me was the finding of a large fibrous tubercular tumor of the larynx, whose walls were so thickened by a hard swelling as to have an opening of only the size of a small pencil, causing dyspnea. The second point concerns the prognosis and the therapy. The patient's larynx remained well after the excision up to within a few days before his death.

The prognosis of tubercular laryngitis depends entirely upon the condition of the lungs. It is good if the disease of the lungs either improves or at least does not progress; for example, a teacher whom I saw first in 1898—absolutely aphonic, with swellings of her arytenoid cartilages, and red, swollen, partly paralyzed, vocal cords, has been teaching ever since about three months after I saw her. Other similar cases might be mentioned.

In the therapy the first requirement is absolute rest of the larynx. The patient is not allowed to talk a word. Great improvement and even cures have been noted from this agent alone. Precautions ought to be taken that the psychic effect, the depression, does not become too great. In special sanatoria this can be done more easily and more effectively. Unfortunately, few of them are available to the middle and lower classes. Germany has found ways to overcome this difficulty. The results are correspond-

ingly better. Local applications of lactic acid, 30 per cent., 50 per cent. and 75 per cent., are often of benefit, if the patient is willing to submit to the pain and discomfort they involve. At the same time, the pharyngitis which is always present must not be overlooked.

Different forms of the galvano-cautery, the simple stab-cautery or the multiple cautery, also give very good results. In extensive applications of this agent the reaction is often quite considerable. A certain reluctance to use the knife and the curette was felt, dating undoubtedly from the time before the cocaine and adrenaline. In 1913 Arnoldson¹ published a strong appeal in favor of the simple surgical methods of dealing with the different swellings. My experience in the above described case, and in others, spoke certainly in favor of this advice. The advantages are numerous. First, there is comparatively little hemorrhage, and the reaction which is often quite serious after extensive cautery is entirely absent. The young lady whom you saw tonight came to me absolutely aphonic. The epiglottis was at least one centimeter in thickness. I amputated the epiglottis two weeks ago—on a Saturday. On the Monday after that operation she went to work again. Her voice began to improve at once though the larynx is not quite well.

Whether direct or indirect laryngoscopy is preferable is a matter of taste. Direct laryngoscopy gives better access to the diseased parts; indirect is easier on the patient, which advantage must not be under-estimated in patients who are so easily affected by psychic influences.

An important point is finally the overcoming of the difficulty in swallowing, which often occurs in the later stages of the disease. The question is of great importance, as many patients do not eat because swallowing hurts them so much that they avoid it at all costs. The consequence is that they lose weight and ground very fast. The simplest means by which to overcome this is by the use of the narcotics and local anesthetics—morphin, cocain, orthoform, anesthesin, and nerve-blocking. Morphin, cocain, orthoform and anesthesin have certainly all some influence on the heart, which is absent in nerve-blocking. Nerve-blocking consists in the injection of alcohol in the vicinity of the superior laryngeal nerve. Since the procedure is very

¹Arch. f. Laryn., XXVII.

simple, it must be recommended in preference to the narcotics and local anesthetics. But under all circumstances we must not forget that all this will not have any curative effect. If we do not at the same time apply any local surgical measures, we simply keep busy doing nothing for our patient.

External surgical measures, tracheotomy and laryngo-fissure have both been used by the writer in a few cases. They invariably leave the patient in a much worse condition than he was before, either generally or locally, often both. Even laryngectomy was advised by some authors. Whether the life of these patients is prolonged thereby, I do not know; surely their sufferings are. Whether radium, x-rays and sun-rays will accomplish all that is claimed is questionable; we are inclined to expect more of the things we do not know anything about. The well-known surgical procedures have the advantage that we know what we are doing. It is true, they require experience in the diagnosis, and skill in their performance, but those are qualities that we can and have to acquire.

5 North Wabash avenue.

DISCUSSION.

Dr. O. J. Stein wanted to take exception to the statement that external surgical procedures—and the essayist mentioned laryngo-fissure—are objectionable. He feels that there is a field for this operation; that well-defined local tumefactions of a tubercular character can be eradicated, and the probabilities of a dissemination of the disease in the larynx, or possibly elsewhere, can be mitigated.

In this connection he wanted to ask if any of the members had had any experience in the use of tuberculin locally in the larynx. He has tried it a few times, but was not in a position to give a report of them at this time.

Dr. E. P. Norcross thinks there is a very pessimistic opinion held as to the curability of laryngeal tuberculosis. This may be due to the great variation in statistics dealing with the frequency of this complication of pulmonary tuberculosis. The speaker thinks that if the cases were all examined carefully, in the same way that we are taught to recognize early changes in the lung, the percentage of cases of consumptives having tubercular laryngitis would be greatly augmented, and naturally, then, the percentage of cures would also be augmented. One cannot help but believe that there are many cases of tubercular laryngitis never diagnosed that heal spontaneously, just the same as the lung trouble may heal.

Dr. O. T. Freer agreed with Dr. Holinger concerning the uselessness of external operations in most cases of laryngeal tuberculosis. This is the conclu-

sion of Dr. Nils Arnoldson, of Stockholm, who has made an exhaustive study of the matter. He says (*Archiv für Laryngologie*, 1913, page 46): "In the literature of later years little belief is expressed in the possibility of material benefit from the external operations, least of all from total extirpation of the larynx." Gluck, quoted in Arnoldson's article, however, advises external operation where all of the tubercular disease may be extirpated by it, and states that in many cases laryngeal tuberculosis is merely an active focus of localized tuberculosis.

Undue optimism in regard to recoveries obtained by endolaryngeal surgery must also be avoided. Where a tubercular focus may be excised with uninfected tissue about it, as in the case of tuberculosis of the epiglottis confined to the periphery of its free, pharyngeal portion, a permanent cure may be obtained. But where the disease has entered into the tissues of the body of the larynx itself, as in ulcers of the cords, ary-epiglottic folds, ventricular bands, and especially where there is tubercular, infiltrative chronic edema or perichondritis, complete extirpation by endolaryngeal cutting operations is impossible, for there are always miliary foci scattered far about the main seat of the disease, which lie in apparently healthy tissue, and which reproduce the tubercular process. This may be seen especially well in nasal tuberculosis, where an apparent complete removal of the tubercular focus is so easy, for in spite of such removal a return of the disease is the rule.

Dr. Freer agreed emphatically with Dr. Holinger that laryngeal tuberculosis is often primary. There never has been proof advanced for the often repeated assertion in the text-books that laryngeal tuberculosis always follows pulmonary tuberculosis, and is evidence that a pulmonary focus exists. Dr. Freer always examines the chest in cases of laryngeal tuberculosis, and has often, even in advanced cases, failed to find any sign of pulmonary disease. To assert that, nevertheless, a primary pulmonary focus must be there simply because there is laryngeal tuberculosis is merely an unproved dogmatic statement. Later, of course, the lung nearly always becomes infected with tuberculosis in the form of aspiration tuberculosis.

Dr. L. E. Gordon's experience in operative procedures upon tubercular patients has been limited to those for correction of deformities in the nose and throat. He has seen a number of cases that were on the sanatorium waiting list clear up after degenerated tonsils were taken out, deformities in the septum or turbinal bones corrected, and this observation has led him to the conclusion that the larynx is not very susceptible to invasion from the lungs, provided the upper respiratory passages are normal.

Dr. E. L. Kenyon is inclined to think that the laryngologist does not apply the same intelligence to the examination of these cases of tubercular laryngitis as the internist does to the pulmonary condition. The attitude of the physician treating pulmonary tuberculosis is largely the attitude of prophylaxis. He says: "Attack the tuberculosis of the lungs before the

lungs are attacked with the tuberculosis, as it were. In other words, so treat your patient as to increase his resistance. The speaker believes that laryngeal tuberculosis as a primary proposition is extremely rare, because he believes that the conditions necessary to produce tubercular laryngitis are exceedingly rare excepting in connection with pulmonary tuberculosis. In cases of pulmonary tuberculosis, one is able to watch the development of laryngeal tuberculosis if he watches the larynx. Not only that, but he is able to see the conditions in the larynx which predispose to pulmonary tuberculosis. He sees the local laryngitis which is tending to result in abrasions of the mucous membrane, in which abrasions the tubercle bacilli become engrafted. The time will come, in the opinion of the speaker, when laryngologists will examine every pulmonary tuberculous patient systematically for trouble in the larynx, not once in six months, or once in a long period, but as an essential part of the treatment of the pulmonary condition as frequently as necessary. Watch will be kept of the larynx, and primary disturbances will be treated with the purpose of avoiding laryngeal tuberculosis. That will be the advanced future attitude of the laryngologist in reference to laryngeal tuberculosis.

Dr. Kenyon feels that cough is a primal factor in the development of laryngeal tuberculosis, because cough involves the most violent action we have in the larynx, and it is this violent action in the larynx, taken with a chronic laryngitis, that he feels is responsible to a great extent for the infection of the larynx with the tubercle bacillus.

Dr. H. Kahn said that one point to be considered in the surgical interference in laryngeal tuberculosis is whether the condition is one of open or closed tuberculosis. Surgical interference in laryngeal tuberculosis where there is temperature is absolutely contraindicated. That is the real crux of the situation. When temperature is present, only palliative measures are indicated. Regarding external operations, Hajek, in the *Medicinische Klinik*, 1912, page 385, has reported excellent results with tracheotomy. The larynx is placed absolutely at rest for a period of some length, and most of the cases recovered.

Dr. Holinger, in closing the discussion, said that he knew that his standpoint on the question of laryngofissure was not shared by all members, but all his cases operated on by laryngo-fissure did not do at all well. The impression he received was that the excitement of the operation and after-treatment pulled the patient down.

The speaker noticed that he had been misunderstood by Dr. Norcross. He said that, on the whole, the prognosis of laryngeal tuberculosis is good. The main point is early diagnosis. Dr. Norcross spoke about early examinations—not only early, but regular examinations of the larynx of consumptives. The speaker has been many times in a very disagreeable position, when patients suffering from tuberculosis of the lungs came and complained about their larynx. Their physician contended that the hoarseness, etc.,

amounted to nothing, and did not need special attention. Add to that the changeability of the symptoms, the patients sometimes having absolutely no symptoms for weeks. What should the specialist say and do when suddenly bad laryngeal symptoms appear? Is it his duty then to protect the general practitioner before the patient? How is he going to justify serious therapeutic measures before the patient?

As to the frequency of diseases of the nose in tuberculosis of the lungs, it is text-book knowledge that tuberculosis of the lungs and larynx is three and four times more frequent in patients who have irregularities in the nose than in those with normal noses.

TUBERCULIN IN DIAGNOSIS AND TREATMENT.*

MOSS MAXEY, M. D.,
MT. VERNON, ILL.

From time immemorial tuberculosis has been considered a universal plague. Centuries ago Hippocrates remarked, "the most dangerous disease and the one that proved most fatal to the greatest number was consumption," and since then physicians of all times have had to contend with the white plague. Probably the first successful attempt at scientific treatment of the disease was made by Brehmer, who founded an institution at Goebersdorf in 1859. Before that time Bodington, an English physician, had attempted to practice the fresh air treatment in an institution he established, but his efforts met with failure and his institution was turned into an insane asylum.

It remained for Koch to discover the specific cause of tuberculosis and his announcement in 1882 of the discovery of the tubercle bacilli, threw a great light on a hitherto baffling disease. With the discovery of its cause, Koch at once set about the discovery of a cure, and when in 1890 he announced to the world that he had found a cure, people were overjoyed, for with an annual toll of 150,000 deaths in the United States alone, to its credit, tuberculosis had become a serious problem. But years of experiment were necessary to perfect the use of the remedy. The disastrous results which followed its early and unskilled use caused tuberculin to fall into disrepute. Patients far advanced were given large doses and the violent reactions which followed, created a prejudice against the remedy.

*Read before the Jefferson County Medical Society.

which bade fair to submerge it in oblivion. Had it not been for a few men like Von Ruck and Trudeau, who kept steadily on with their experiments, there is no doubt that tuberculin would have been pronounced impracticable.

In giving my experience with tuberculin I must state that for both diagnostic and therapeutic measures I use Koch's Old Tuberculin, made by Lucius & Bruning, and make the dilutions as I need them. The value of tuberculin in diagnosis is no longer questioned. With its aid many cases of so-called stomach trouble, bronchitis, colds, etc., have been found out in time and many lives saved when a false diagnosis would have caused delay—and delay would have meant death. It is no longer necessary to wait until the hectic cheek and the hacking cough appear, to make a diagnosis. By a tuberculin test, tuberculosis can be discovered and treated at a time when it is most easily cured. In fact, early and accurate diagnosis is one of the essential factors in the successful treatment of the disease, for in its incipency, tuberculosis yields readily to proper treatment and really offers more hope of cure than some of the other chronic diseases which are usually considered less fatal.

Patients who come complaining of being "run down," easily tired, weak and with no appetite, should be given a test dose of tuberculin, unless these symptoms can be ascribed to other troubles. These are the danger signals, and a correct diagnosis at this time means everything to the patient. With every week of delay, the patient's chance for recovery diminishes, and if we are going to treat tuberculosis at all, why not do it while everything is in our favor. Where there are no physical signs and only slight active symptoms, such as a slight rise of temperature each day, a tuberculin test will reveal whether or not these symptoms are tubercular, and a few months of treatment will usually serve to relieve the active symptoms.

For diagnostic purposes I prefer the subcutaneous test, as the Moro test is not absolutely reliable. I have also used the von Pirquet test on children, but as the object of the test is to get the tuberculin into the lymphatics, the most satisfactory means is by the subcutaneous test. The site of injection is usually the outer aspect of the arm, below the insertion of the deltoid muscle. For persons with apparently slight

symptoms the diagnostic dose is 15 minims of tuberculin dilution 1-1000. If no reaction follows this injection, on the second day following, 5 minims of 1-100 may be given, and then if there is no reaction, 15 minims of 1-100 may be given two days later, in order to complete the diagnosis. If tuberculosis is present a reaction usually occurs, and if there is no reaction we may consider that the patient is not infected. Of course there are exceptions to this rule, as sometimes patients far advanced will fail to react. This is explained by the fact that the system is already immunized to some extent to the toxins found in tuberculin and to get a reaction from these patients a much larger dose than we are accustomed to giving, would be necessary. But in these far advanced cases, tuberculin is not necessary as a diagnostic measure.

The reaction from a test dose of tuberculin may be either local or general or both, and a diagnosis may be established from either. The local reaction occurs at the site of injection and is characterized by induration, and a red and tender area that varies in size. Should the area of the tubercular infection be visible, as the larynx, the hyperemia and congestion resulting is quite apparent. On auscultation fine rales may be noted where none were to be found before, and all the physical signs will be exaggerated by the test. These conditions are modified by the size of the dose.

The general reaction, too, may be mild or severe. Usually, however, a few hours after the test dose is given there is a slight rise of temperature, the patient is nervous, chilly and complains of a tired feeling, heaviness of the limbs and general discomfort. These symptoms gradually disappear and the temperature returns to normal in 24 to 48 hours. Stronger reactions sometimes occur where the discomfort amounts to actual pain, where there is vomiting, chills and a very high temperature. Formerly a rise of at least two degrees in temperature was necessary before a reaction was recognized, but at present those who are most experienced, accept any symptoms which are unmistakably due to the test, as a reaction. Cases have been noted which were greatly benefited by a test dose and even a very severe reaction seems to do no lasting harm. The following case in my own experience illustrates this point:

A patient in whom no physical signs were found had been running a daily temperature of 99.6 to 100, with a pulse of 108 to 120. A test dose of 5 minims of 1-1000 was given. Within a few hours a violent reaction occurred, the temperature rising to 104, accompanied by marked chills and vomiting. The local reaction was very severe. At the end of three or four days the patient was able to be up, with apparently no ill effects, appetite greatly improved and for four weeks the temperature did not rise above normal. Treatment was begun and after a year and a half patient was discharged apparently cured, as all active symptoms had disappeared, there had been an increase in weight of about 20 pounds and 16 M. of 1-1 produced no reaction.

As a therapeutic measure, tuberculin if used properly is of the utmost value. It is not a poison as many suppose, for large doses may be given a healthy man without producing a reaction. Tuberculin is simply the same bacillary protein, produced artificially, that is given out by the focus of infection in a tubercular patient. This protein, or toxin of the tubercle bacillus, when introduced into the blood stream, produces two results. Its first action seems to be that of an immunizing agent, increasing the antibodies specific for the toxin which caused their elaboration. Its second action is that of a local stimulant to the infected area, causing more blood to flow to the part, and thus healing takes place more rapidly in a patient treated with tuberculin, as the blood, increased in opsonic power is brought in contact with the tubercular area, and formation of scar tissue thus facilitated. Of course tuberculin will not cure all cases of tuberculosis, nor will it remove cavities or restore tissue, but used in time, it will prevent these conditions and it is our duty to use it at a time when it does the most good. Neither is tuberculin treatment in itself a cure, for hygienic treatment also is essential to good results. Fresh air, good wholesome food, and regulated exercise are valuable aids and of equal importance in the treatment. This should be impressed on the patient in the beginning and he should understand that part of the responsibility of a cure rests upon his obeying the physician's orders in regard to these things.

Tuberculin treatment is usually begun with a small dose of tuberculin dilution 1-10000, unless the reaction from the test dose has been severe, in which case it may be necessary to begin with an even weaker dilution. Two injections a week

are usually given, increasing from one to four drops each time, but always falling short of a reaction. The effect of each dose should be carefully noted and used as a guide in determining the next injection. Often after the first few doses the patient notices an improved appetite and an increase in weight, and if cough has been present it usually lessens. No rules can be given as to the length of time of treatment as that depends upon each patient's ability to stand the increased dosage, but in early cases where the dose can be increased rapidly, 8 to 10 months are required. If at the end of the treatment all physical signs and symptoms have disappeared and the patient has no reaction from 14 or 16 minims of 1-1, we may consider that his immunity has been brought to the highest point and the process arrested.

Patients whose daily temperature exceeds 100 or 101 should be put to bed and absolute rest insisted upon. Whether or not tuberculin should be given when fever is present has been a much discussed question, but if we know tuberculosis is present and that it is causing the fever, why should tuberculin be withheld when we know it relieves the tuberculous process? It has been my experience that with rest in bed and small doses of tuberculin administered regularly, fever can be controlled and often stopped entirely within a few months. Mixed infection is a complication often met with in cases that have passed the early stages. These cases are treated by the same means employed in the treatment of fever cases. Rest in bed, tuberculin and an autogenous vaccine will often give excellent results. The following case bears out this statement:

Patient presented herself for examination and I found one entire lung infiltrated, temperature running about 103, and general condition serious. As the temperature did not yield readily to tuberculin treatment mixed infection was suspected, and Dr. Gilmore was asked to make a vaccine, which he did. Following the third injection of the vaccine a severe reaction occurred, temperature rising to 104.4 accompanied by severe rigors. In four days the temperature dropped to 99.4 and during the remainder of the full course of treatment never went above that. At the time this patient was discharged the temperature was normal, lung had cleared up and there had been quite an increase in weight.

There is no doubt that tuberculosis of the genito-urinary tract is quite common, and that it is very often overlooked. I have seen several

cases of obscure cystitis, which had failed to yield to any ordinary treatment, show great improvement after a test dose of tuberculin. In kidney lesions that are tubercular it is of great benefit, and the urine will sometimes clear up remarkably after a few injections of tuberculin. It has been my experience to find so many obscure symptoms which would not yield to ordinary treatment, relieved by tuberculin treatment, that I am led to believe tuberculosis is far more common than we suppose, and that the focus of infection may vary widely.

During the past two years Dr. Gilmore and I have had under treatment about 175 patients, including patients in all stages of the disease. Of this number eight failed to complete the treatment, five (all in advanced stage), have died, and two that completed the treatment were unimproved. About forty of these patients are still under treatment, and the remainder have been discharged, apparently cured, as all symptoms had disappeared and 16 minims of 1-1 in each case, failed to produce reactions. These patients were given no medical treatment except tuberculin, but most of them have slept out of doors and followed out the usual hygienic regime. The gain in weight in each case has been from 10 to 40 pounds and several who began treatment while confined to bed are now able to resume their usual vocations. I have simply stated the facts of my experience with tuberculin, basing my statements on personal observation, and judging by the results noted in my own work, tuberculin has proven a valuable ally in the fight against tuberculosis, and I am led to believe that in the future, tuberculin will be one of the main factors in eliminating tuberculosis from the list of incurable diseases.

TREATMENT OF CARCINOMA OF THE UTERUS.*

M. W. BACON, M. D.,
CHICAGO.

When asked to write a short paper on this subject I was relieved to find that I was expected to talk on the treatment and not the treatment for cure of carcinoma of the uterus.

It is a sad fact that notwithstanding all the research investigations and study applied to this

one subject cancer is rapidly on the increase. Little or nothing has been learned of the causes of cancer and very little hope is offered by operative methods when the carcinoma is advanced to any appreciable extent.

The cases that come to the surgeon are in the majority of cases well advanced and we are absolutely helpless when it comes to offering such a patient a cure.

Cases might well be placed in two classes—operable and inoperable. Of the operable cases I would place all cases in which there is a mere suspicion of malignancy. These in my experience have all recovered. A certain portion of them have by repeated tests shown carcinomatous cells, some of them not.

At this point I would like to ask if other surgeons have had a like experience with mine. A case presenting for examination. The history shows they have been taking office treatments for several months until such advancement of the disease has taken place that a radical operation is hopeless and impossible. A sad state of affairs and not to the credit of the medical profession or such of them as will do such work.

In every Christian family there is at least one copy of the Bible. It has seemed to me that if a warning in plain terms, showing the first symptoms of carcinoma could be pasted to the Bible it would enhance the value of the Holy Writ to a considerable extent.

It seems to be the opinion of all the writers I have consulted the only means we have at our command is the knife, cautery and scissors. How often we fail is hardly necessary to state here.

I present the histories of a few cases out of a considerable number.

Case 1. A woman several years past the menopause had a well marked hemorrhage; came to me and I advised an immediate hysterectomy, which was done. An uneventful recovery and remained perfectly well for ten years. I have no proof in this case of its being malignant.

Case 2. A woman aged 60, mother of a large family, called me to examine her and I found a carcinoma of the cervix, well advanced. In this case I used the curette and applied the calcium carbide, which produced an extensive slough, after which the tissues looked healthy and healed perfectly. She remained well for six or eight months, when it invaded the liver and she died some two or three months later.

Case 3. A woman aged 50 years; several children; carcinoma of the cervix. In this case I decided to do a hysterectomy, using nothing but the cautery knife.

*Read before the Englewood Branch, March 2, 1915.

Everything was apparently removed. Was followed by considerable sloughing, but finally healed perfectly and she remained well for about one year, when a metastasis occurred in the liver and she died a few months later.

Case 4. A woman, aged about 44 years; three children; not yet past the climar. Came to me for operation for a supposed cystic ovary and some tubal trouble. On opening the abdomen I found one-half of the cervix, from the inner os down to external os a board like hardness. And I decided to remove everything by combined vaginal and abdominal hysterectomy. Repeated slides were made from the cervix and other tissues and nothing of a malignant nature was found, but I am not at all sure that some nests were there and overlooked. She has made a fine recovery, but sufficient time has not elapsed to know if trouble will develop, but I am very hopeful.

I could report many more, enough to take up the whole evening, but these fairly show the type that comes to the surgeon for help. And will say in closing that for all those which I have placed in the suspicion class I do the radical operation.

In those well advanced I use the curette and the hot soldering iron, which has the effect of cleaning them up and, no doubt, delays the progress of the disease for some months.

DEFORMITIES OF THE NASAL SEPTUM AND THEIR CORRECTION.*

EDWARD F. GARRAGHAN, M. D.,
CHICAGO.

This paper is intended to impress upon the general practitioner the importance of the early diagnosis and correction of deformities of the nasal septum. Before entering upon a discussion of the symptoms and diagnosis of the conditions involved, a brief description of the anatomical relations of the nasal septum is necessary.

The septum is composed of bone and cartilage. The bones entering into its formation are the perpendicular plate of the ethmoid bone which comprises almost all of its upper part. The perpendicular plate rests below and behind on the vomer and beyond this articulation projects forward to articulate with the nasal spine of the frontal bone and with the nasal bones.

Other bones entering into the formation of the septum are the frontal spine, resting on the

vertical plate, and the crest made in front of this by the meeting of the nasal bones; the crest made by the two palate bones and the two maxillae where they meet and support the vomer; the rostrum of the sphenoid fitting in between the ethmoid and vomer for a little distance. The remaining part of the septum is formed by the septal cartilage which is somewhat quadrilateral in form, usually thicker at its margin than at its center and which completes the separation of nasal fossae in front. Its anterior superior margin, thickest above is connected from above downward with the nasal bones, the anterior margin of the two upper lateral cartilages and the inner portion of the two lower lateral cartilages. Its posterior superior margin is connected with the perpendicular lamella of the ethmoid, its posterior inferior margin with the vomer and the palate processes of the superior maxillary bones.

The anterior inferior free border is attached to the skin and supports the tip of the nose. The cartilage is frequently displaced and is sometimes referred to as the alar cartilage.

Almost every form of deflection from the sharp angular spur to the gradual sigmoid deflection involving the vomer and perpendicular plate of the ethmoid, gives rise to nasal stenosis. To determine the exact location and character of the nasal obstruction a systematic examination should be made of the anterior and posterior nares. The breathing should then be tested before and after adrenalin mucous membrane shrinkage by alternate insertion of a piece of cotton into each nostril, auscultation thus helping inspection to determine the degree of stenosis. A post rhinoscopic examination should now be made with the mirror to ascertain whether the posterior ends of the turbinates are hypertrophic, to observe the condition of the posterior end of the septum, the presence of polyps or adenoid growths. Since marked deflections of the septum are so often accompanied by a compensatory hypertrophy of the inferior turbinate of the opposite side, a thorough examination of both nostrils should be made after the application of adrenalin or cocaine has caused the turbinate bodies to shrink and the pathological conditions are brought in view. It is well to mention here that the symptoms due to obstruction do not always correspond with the degree of nasal

*Read before the Douglas Park Branch of the Chicago Medical Society, March 16, 1915

stenosis present. Many patients with moderate stenosis have a disproportionate feeling of impending suffocation, especially at night. Headaches which are at first thought to be ocular in origin have disappeared after the removal of high deflections of the septum, which cause pressure upon the middle turbinate when it is even slightly swollen, but this condition as a cause of headache is easily overestimated. Again, a badly deflected septum may so obstruct nasal drainage as to perpetuate infection of the ethmoid and other nasal sinuses and so favor the development of nasal mucous polypi. One of the most constant symptoms of deflected septum is a persistent post-nasal discharge which is always worse in the morning, causing hawking and scraping and is occasionally accompanied by a chronic inflammation of the pharynx and sometimes of the larynx. Many reflex symptoms are caused by deflections of the septum sufficient to cause contact and pressure effects. There are cases of hyperesthetic rhinitis with excessive sneezing that have been helped and even cured by correction of the deflected septum. Operative measures are often indicated when a marked deflection of the septum prevents the passage of the eustachian catheter for the relief of tinnitus aurum. Constantly recurring coryzas, general anemia, stunted growth and other evidences of oxygen starvation are often the result of a nasal stenosis which is secondary to a badly deflected septum. I have dwelt at some length upon the bad effects of septal deformities because I believe that the general practitioner who is usually the first to see these cases, should be able to recognize the condition at the earliest possible moment. As to the methods in vogue for the correction of septal deformities, the saw operations and the Ash and Gleason methods have given place to the more thorough and scientific method of submucous resection of the septum. The technique is more complex but is based upon the correct principle of removal of the entire nasal obstruction with preservation of the mucous membrane. We recognize two distinct types or methods of performing the submucous operation, the button-hole or slit method of Killian and the flap or open method of Freer. Both of these original methods have been modified by different operators and they have been combined in the same

operation. Killian of Berlin has devised a method which consists in making a curved incision in the mucous membrane and elevating the mucous membrane by means of dull elevators.

The operation devised by Freer is executed by means of sharp cutting instruments through a reversed L-shaped flap in the mucous membrane. The technique employed in the flap operation for submucous resection of the septum is as follows:

The patient is placed on a table or chair in a semi-recumbent position. A dental chair which can be easily raised or lowered or changed to any position is recommended. The semi-recumbent position is being advocated more and more by rhinologists, because the patient is more comfortable, the head has a firmer support and the aid of an assistant to hold the head is dispensed with, while the operator has more control over his patient. As to the local anesthetic, cocain in the form of flakes or crystals together with adrenalin is used in all operations except in the case of very young children. When the operation is indicated just enough chloroform is given to keep the patient quiet. Owing to the danger from chloroform anesthesia, I would suggest the use of ether. In regard to the use of cocain I believe that there is less chance of ill effects from the drug used in its full strength than there is from that of the 10 or 20 per cent. solutions.

The weaker solution is more readily absorbed while the flakes or crystals, especially when used after the surface is thoroughly rubbed with adrenalin, so control the circulation that little is absorbed. It might be well to mention here that a good headlight is very essential for good work within the nose and the Kirstein electric headlight is the best in use at the present time.

The field of operation is prepared by removing any hairs within the nostril that might obstruct the field of vision or be the source of a possible subsequent infection. A cotton swab dipped in adrenalin and cocain is rubbed over the entire septum on both sides and this is repeated once or twice again after the initial incision has been made.

The primary incision is a horizontal cut through the mucous membrane and perichondrium along the base of the cartilaginous portion of the septum. A vertical incision is then made

in like manner, extending from the upper part of the septum downward to meet the horizontal incision. The convex side or side of the deflection is in most cases the side of election for operation. If a sharp vertical angle is met with in the cartilage in front the incision is usually made along the angle and is then continued forward along the floor of the nose or base of the cartilage to make a sufficiently large flap. The flap is now outlined and the elevation of the mucous membrane is begun at the horizontal incision, and as this is along the base of the cartilage, where the membrane is adherent, it requires sharp dissection. The white cartilage is easily recognized and when the flap is entirely elevated forward and upward, it is held by an assistant. From the posterior edge of the vertical cut the elevation of the mucous membrane is now continued as far back and as close to the crest as possible. The elevation above is made with comparative ease and with dull instruments while we find the membrane quite adherent along the incisor and maxillary crest and here sharp dissection is necessary. The incision is now made in the cartilage depending entirely upon the sense of touch to prevent a perforation. It is unnecessary as some advocate to hold the finger in the opposite nostril to ascertain whether or not the knife is through the cartilage. The cartilage is gently elevated by means of a hoe-shaped instrument and held in tissue forceps while the muco-perichondrium of the opposite side is carefully separated and the elevation is continued as far back as possible and down to the bony crest. The cartilage is excised by means of a sharp elevator or angular knife especially devised for the purpose. About one-half to three-quarters of an inch of cartilage is usually left above as a support for the nasal bridge. This is exceedingly important as the removal of too much cartilage has resulted in a subsequent sinking in of the nasal bridge. This also provides for a possible absorption of cartilage in this region.

At this point it might be well to allude to an anatomical arrangement of the perichondrium and periosteum which is not always recognized by operators and which has recently been brought out in an article by Freer. The perichondrium follows the cartilage as it rests upon and over-

rides the vomer and incisor crest, collectively called the "ridge" and the cartilage and bone are seen to have two separate and distinct membranes, the perichondrium and the periosteum. Where the cartilage over-rides the ridge it is dissected out and removed completely before the ridge can be fully exposed. The ridge is then found to be enclosed in its distinct covering of periosteum which is incised and separated by means of sharp elevators and a raspatory to fully expose the bone. The bony ridge is best removed by means of the chisel and punch forceps which obviates the danger of fracturing the bone. The flaps are then replaced and both nostrils are closely observed to make certain that none of the deflection remains before the nose is packed. The packing consists of absorbent lint saturated with bismuth powder and cut into long narrow strips. The strips are placed in the nose in layers beginning on the floor of the nose and superimposed one upon the other until the packing is complete. This packs the nose evenly and does not bulge into the other nostril. It is sufficient only to pack the one side operated and to facilitate the removal of the packing the strips are dipped in vaseline oil.

The packing is usually removed in twenty-four hours. Some advocate no packing for these cases. My experience has been that the hemorrhage which sometimes follows a submucous operation is so severe in some cases that to allow a patient to go without packing is dangerous. As to the time required for performing the operation it usually varies with the extent of the deflection and may consume from half an hour to an hour and a half. Thoroughness is often sacrificed in the great desire for speed and many cases of perforated septum are to be attributed to this cause alone.

The after treatment consists in keeping the nostril closed by means of a plug of cotton for about two weeks after the removal of the packing and at the same time spraying the nose with a vaseline oil spray. Later on instead of the oil spray, the nose is swabbed with an ointment, composed of fifty grains of boracic acid to $\frac{1}{2}$ ounce each of lanolin and vaseline oil. This minimizes the production of scabs due to the passage of air through the nostril and materially aids in the healing process.

MORPHIN AND COCAIN ADDICTION WITH SPECIAL REFERENCE TO PROGNOSIS.*

HERBERT WM. POWERS, M. D.
WAUWATOSA, WIS.

The first question put to the physician who has made a diagnosis of drug addiction, or who has been consulted in reference to such a case, is usually as to the prognosis.

While the statement of prognosis is in all cases a delicate matter, yet perhaps such statement is more difficult in the domain of nervous and mental disease than in other special branches of medical science, and still we must attempt a more or less definite statement in each individual case, and so must weigh carefully all the minutiae pertaining to the patient and to his affliction.

Cases of morphin or cocain addiction, brought to the attention of those in special practice, are usually ones of long standing, indeed all cases of habit formation are of necessity chronic and the prognosis involves a consideration of, first, the possibility of successful withdrawing of the drug used, and, second, the possibility of effecting a permanent cure.

It will practically always be possible to make a favorable statement as to the first term of our prognosis, as there exists but little difference of opinion as to the possibility of withdrawing morphin without endangering the patient's health, except in a few rare cases.

As to the second term, the possibility of effecting a permanent cure, it is necessary to be more cautious, and I will present briefly the best opinion upon this phase of the matter.

A hasty review of the American literature upon the subject reveals a large number of very superficial articles presenting in my opinion, very unwarranted conclusions, one man reporting 800 cures with only 10 per cent. relapses. Most of these papers are exploitations of the hyoscine substitution method of treatment, and I believe that, judging from my own experience, their conclusions as to permanency of results are of little value.

I say this because I believe that a patient, having relapsed after treatment by a certain man

or method, does not, as a rule, return to that man, and is very likely to try another method; thus we are spared seeing our failures, but our viewpoint is perhaps warped.

A review of the German literature recently summarized by Koenig, discloses to my mind a more thorough appreciation of the gravity of the subject.

A very unfavorable view of the prospect as to permanent cure is expressed by most authors, notably—Levinstein, Kraepelin, Deutsch, Oppenheim and Berthololey, while Erlenmeyer and Bumke state "that most cases relapse." These opinions emanating from European clinics where patients are under very strict observation and where the after care is unusually thorough, are entitled to great weight and the actual belief and experience of physicians of my acquaintance, who have had opportunity of treating many cases, is that most of those who have been restored to society as cured, after a longer or shorter time again succumbed to the temptation to use morphin in some form.

A larger experience has led me to believe that in the majority of cases the persons afflicted naturally lacked will power and resistance and, in fact, had very little self-control.

Many men have given close study to the factors making for safety or the reverse in individual cases and many conclusions as to the predominant factors have been formulated, I believe, however, that no method of attack is better than the simple consideration of, first the patient, his mental make-up and peculiarities, and, second, duration of treatment.

In speaking of the patient as the first factor, I include the sum total of his physical and mental make-up, previous to his use of morphin, and including the cause or causes which led to his embracing a habit forming drug. I believe that these patients may be divided into three etiologic groups for the purpose of this discussion.

1. Those who acquired the drug habit because of *chronic* painful ailments, such as tabes dorsalis, neuralgia, painful peritoneal growths, etc.

2. Those who resorted to drugs because of *acute* and perhaps relapsing ailments, such as gall stones, kidney stones.

3. Those who, although free from physical ailments, resort to the use of morphin in order to free themselves of painful psychic disturbances,

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as mental depression and insomnia, also those who acquire its use in search of new sensations. This third group, of course, includes those nervously weak individuals, especially those who are so from inheritance, whose will and judgment are in unstable balance, who rush to gratify every desire, content to, and intent upon fulfilling today's wish, heedless of the future evil which may be resultant upon so doing.

It is obvious that there is little to expect from those patients who are embraced in the first group, if we are unable to remove the chronic, painful condition which led to their habit formation.

Also we must confess to little hope of permanent cure in those of the third group, because there too we are unable to remove the primary cause which lies in the central nervous system.

There are many authors who deny the possibility of morphinism in persons of normal mental make-up. Weber in a monograph published in 1910 says: "Morphinism originates in the soil of a latent predisposition, the result of inherited degenerate dispositions." Deutsch and Fuhrer hold to this view, as do Briand and Tissot of the French school. Berthololey, however, maintains that the neurasthenic state found in morphinists is the result of the habit, and does not believe that a majority of habitues possessed moral or intellectual defects previous to acquiring the habit.

It is, of course, very difficult to secure sufficiently accurate data in many cases to enable one to say authoritatively that the patient was or was not an individual of stable nervous system preceeding the habit formation.

I am of the opinion, however, that one-half of all drug users are nervously constitutionally inferior individuals. But among the second group, the conditions are different and it is among these patients that our efforts have the greatest chance of success.

In reviewing the recent American literature upon morphinism I was astonished at the apparent failure of many to realize the imperative necessity of time as a factor in the treatment of drug addictions.

Many writers appear to consider the case at an end and responsibility over when the patient

has had his last dose and been free from acute distress for a few days.

This, however, is not more than one-half of what must be accomplished. Such a patient needs a prolonged period of protection and a complete physical and mental upbuilding, best accomplished in my opinion by means of out door life, graduated exercise and rest, together with hydrotherapy. The most conservative German authorities advocate 6 to 9 months as absolutely necessary to bring about such a rebuilding of the individual as to give reasonable hope of permanent cure.

There is no diversity of opinion among authors abroad as to the need of protracted treatment. Friedlander says: "Only if we succeed in recasting the personality of the patient, in strengthening his will, and in making him free and strong from within, may our task be considered completed.

In this country the advertisement of three-day and ten-day cures has greatly lessened the period during which the patient can be prevailed upon to undergo treatment, and hence has greatly lessened the chance of permanent cure.

Granting that after a thorough study of all the details of a case, we have made a favorable prognosis, when may we say that a cure has been accomplished?

Certainly not immediately upon the withdrawal of the drug for, although the patient may say that he has no craving, and may appear comfortable in his then surroundings, nevertheless such a patient is in a state best likened to one of neurasthenia; all of the vital functions are more or less upset, intestinal disturbances prone to occur, sleeplessness, muscular cramps and vomiting upon fatigue, headaches and periods of great restlessness frequently occur at intervals for a number of weeks.

These disorders may be warded off in many instances by careful aftercare, but are almost certain to occur in patients returning too soon to their accustomed vocations and many times lead to an almost immediate return to the use of morphin.

There is no convention as to when a patient may be pronounced "cured." Some German authors report relapses after long periods, notably Berthololey, who reports relapses after seven

years, and Deutsch, who reports a lapse after nine years.

At this rate we could hardly speak of a permanent cure at all and would regard all successfully treated patients as potential drug users.

This is in marked contrast with American literature in which cases are reported as permanently cured so soon as the drug is withdrawn.

It would seem as though a middle ground between these views might be tenable, say that we regard as permanent cures patients who remain well for eighteen months after the last dose, in the meantime pursuing their usual occupations.

The main purpose of this paper, however, is to emphasize the seriousness of the morphin habit, and to controvert the increasing belief that it can be eradicated in a brief time by any so-called cure or treatment, and to urge that those physicians who are consulted by drug users impress upon them the importance of giving not less than three months to the attempt to permanently rid themselves of the habit.

REPORT OF A CASE OF JUVENILE PARESIS.*

EDWARD FRANKLIN LEONARD, M. D.,
CHICAGO, ILLINOIS.

Instructor in Neurology, School of Medicine, University of Illinois; Formerly Assistant Physician, Jacksonville State Hospital.

The first case of juvenile paresis was described by Clouston in 1877, and showed no difference, either clinically or anatomically, from the paresis of adults.

Since then a large number of cases have been reported, there being about 250 cases on record. Mott, A. Westphal, Oppenheim, Regis, Wigle-marth, Bury, Strumpel, Hufner, Hirschl, Bresler and others have made reports on this condition. It has, moreover, been rendered more easy to diagnose since the Wassermann reaction came into use.

In a Report of the Insane and Feeble-minded admitted to Institutions during the year 1910, issued by the Department of Commerce, out of 60,769 patients with all forms of psychosis there were 327 under fifteen years of age, and seventeen of these had general paralysis (11 males and 6 females). Between the ages of fifteen and

nineteen there were 2,539 patients admitted, and 47 of these had general paralysis (28 males and 19 females).

Though some writers claim that juvenile paresis is more frequent in the female sex, and the foregoing statistics show that the male sex predominate, I think it is generally conceded to be about equal in both sexes. One reason for the small number of cases on record may be due to the fact that the disease is often diagnosed as

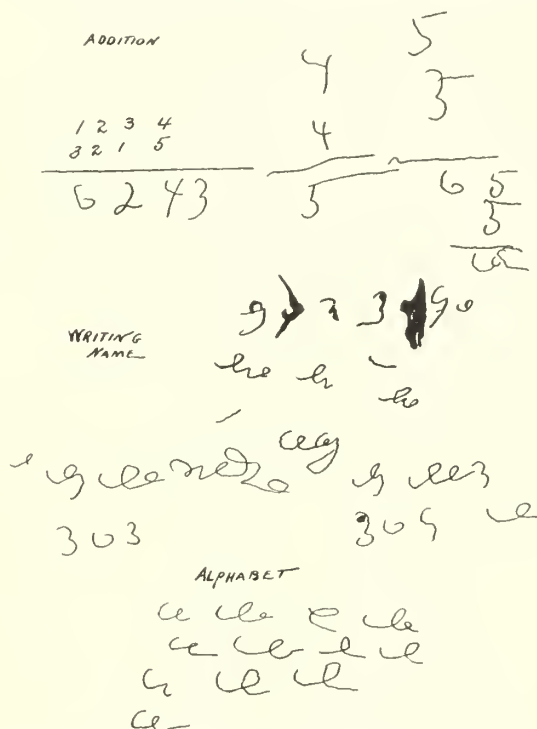


Fig. 1. Handwriting and mathematics showing the mental deterioration of patient. It does not, however, show the excessive tremor of the adult type.

"idiocy with epilepsy." It is not unusual to find such cases in institutions for idiots.

As a rule the disease begins during the years of development, but it is sometimes found as early as five or six years of age. Often there is a noticeable mental and physical inferiority in these children from infancy; while in other cases there is normal development, and the disease comes on gradually, as in adults.

Statistics emphasize the fact that syphilis is the common basis of juvenile paresis. Alzheimer found this to be certain, or very probable, in about 70 per cent. of his cases. Hirschl, among 20 cases, obtained 17 certain and one probable history of inherited syphilis, and Mott, from

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examination or in the history of 22 cases, found evidence of lues in 80 per cent. Often it is found that the parents are victims of tabes or paresis, the brothers or sisters suffering from congenital syphilis; or alcoholism and syphilis can be found in the parents. In the majority of cases, however, hereditary syphilis is found to be the cause. But whether the case is one of congenital or acquired infection, the symptoms of both are probably due to toxins produced by the activities of the *Spirochaete pallida* on the brain cortex.

The clinical symptoms of the disease vary a great deal and are rather uncertain. External evidences of congenital syphilis are not unusual; but at times the diagnosis is made difficult by the absence of stigmata. What we find as a rule, however, are symptoms similar to those seen in a case of simple demented paresis; for it is rare to find a case in which childish ideas of grandeur occur. Mott reports one case and Kleinberger reports five which showed grandiose ideas.

During the course of the disease excited states at times occur, when the patients become very emotional and cry senselessly, throw themselves about, grasp at invisible objects, and will not stay in bed.

The early symptoms may be chiefly motor, such as stumbling and clumsiness in walking. Later a disturbance of speech becomes noticeable, while inquiry may bring forth the fact that the child has appeared to be somewhat dull at school lately. Optic nerve atrophy is among one of the early frequent symptoms; while the Babinski reflex is often demonstrated for a long time; sometimes a dorsal flexion of the great toes results. Convulsions seem to be of very frequent occurrence, and are mostly of an epileptic character.

The disease is of about two or three years' duration, though life may be prolonged for five or six years, and one case has been reported in which it lasted over nine years. The majority of writers claim that the course of the disease is shorter as the age increases. The mental and physical weakness increases as the disease progresses, until the patient finally becomes unclean and confined to bed, which makes him liable to any intercurrent affection.

The morbid anatomy of juvenile paresis is similar to that found in the paresis of adults,

with the addition of the signs of congenital syphilis.

The case to be reported is R. S., aged about 13½ years. Her parents are both living, but separated. The father is a heavy drinker, and was so at the time of the birth of the patient. His disposition is queer and irritable. The mother is nervous and suffers with headaches. There is no history of insanity or nervous diseases in relatives. The parents are not related the mother was 22 at birth of patient; the father was 28. Birth of patient was normal, no instruments being used. The history of grandparents is negative.

The mother of patient had four children; two girls are living, the patient and a sister, who is well. Two boys died, one from summer complaint at the age of ten weeks; the other died just after birth. The mother said she had the following miscarriages; one before birth of patient, several after birth of patient, one before next child, and three before next boy.

Early Childhood: There was no blemishes on body of patient when born. At nine years of age she had an eruption resembling scarlatina. During the course of this eruption, or just after, four or five large blebs (as large as a dollar) formed on the back, and left small scars. The patient did not suffer from convulsions during infancy or childhood. She began to walk at eighteen or nineteen months and began to talk about the fifteenth month, and dentition was apparently normal. She had measles during childhood.

Character as a Child: For the first five or six months of life was cross. As she became older she was easily pleased, and was never selfish or stubborn. She was a very active child.

School: Because of some school rule, she did not start school until 7½ years of age. She remained at school 3½ years. She was very bright, learned easily, preferring books to play, and had just passed into lower fourth grade when taken out of school.

Habits: She was social and mingled with children of her own age.

History of Present Illness: The mother states that about 1910 the patient had adenoids and enlarged tonsils, and seemed to lose interest in things and become indifferent. The adenoids and tonsils were removed. The mental condition of the patient became worse after the operation. The first noticeable change was the soiling of clothes with urine; next she began to act in a foolish, silly or baby-like way. The speech began to change about a year and a half ago, and gradually grew worse; the patient had difficulty "in getting her words out," and her mother could not always understand her. Before the onset of the speech defect, a disturbance in gait was noticed, such as stumbling into or running against things, and this disturbance in gait has progressed. A few times during the summer the patient soiled her clothes with feces.

It was next noticed that the patient's reading, writing and mathematical calculations were deteriorating

The memory defect dates back two years. The character and disposition of the patient changed; she became emotional, cried, became angry or irritable, and swore quite often. Before the onset of the illness the patient was an excellent speller, a plain penman, good in arithmetic, and could read and pronounce words distinctly.

At present the patient is a great care to her mother, requiring the attention of an infant. At times she eats with her fingers, has great difficulty in buttoning her clothes; takes a long time to dress herself, and then does it carelessly. It is necessary to take her to the toilet, put her to bed, wash her hands and face, comb her hair, and wipe her nose.

General Appearance and Manner: We see a patient, idiotic in appearance and actions, changeable of mood, at one time, silly laughter and behavior, another time whining or swearing. She is careless in personal appearance and in eating, necessitating the use of a towel around the neck to protect clothing. The facial expression is neither sad nor happy, but aimless; there is apparent indifference in her manner. She is impulsive at times, and has a habit of sucking her thumb and picking her nose. Her weight has increased; she stumbles and is clumsy in walking. She does not comprehend orders and makes mistakes in executing them, and there appears to be some confusion.

Spontaneous Complaints: Unable to elicit any from patient.

Emotional Attitude: At times swearing, crying or whining, or laughing sillily.

No delusions, hallucinations or illusions were elicited.

Orientation: After prompting, the patient was able to give her name, but not home address. She did not know the day of the week.

Personal Identification: She did not know when or where born. After some prompting, knew her age.

Memory of Immediate Past: Did not know what she had had for breakfast that morning; or know when she came to the city.

Retention: The patient was shown a pencil, but she could not remember it in a few minutes.

Grasp on Stock and Extent of General and School Knowledge: She could not say the alphabet, nor the days of the week; neither could she tell the date of Christmas.

Calculation: She could not count from 1 to 10, nor add simple problems such as $1+2$; $3+6$; $5+5$. She was given 45 cents in change and after a short time was able to name the coins, but unable to compute the amount.

Reading: She could not read simple sentences. She attempted it, but could only utter unintelligible sounds.

Writing: She could not write her name.

Insight: She did not have any insight into her condition. Her mother says, however, that at one time the patient said, "I wish I was dead."

Physical Condition: Her nutrition is good. There

is some furring of the tongue and dryness of the lips. The appetite is good; but she bolts her food and drinks water or milk in gulps. She is constipated. There is incontinence of urine, wetting the clothing frequently. At times she soils her clothes with feces.

Nervous System: Smell and taste practically normal. Vision and hearing practically normal.

Sensibility: Possibly some tenderness on deep pressure over nerves in lower extremity, as patient cried when pressure was made; in fact, she cried when any examination was attempted. Both feet were cold; skin of lower limbs was glossy; dermatographia was present.

The tactile and pain sense were apparently normal. The finger to finger and finger to nose tests were defective.

Cranial: Pupils equal; did not react to light, but to accommodation. There was some sluggishness of pupil dilation on irritating cervical sympathetic.

The voice was of a nasal character, articulation markedly defective. The patient had difficulty in getting the words out, and slurred them; the speech was drawing.

Gait: At times in walking there was a tendency to fall down, as if the knees were weak; the movements were clumsy, and the patient was unable to stand on one foot, or to take off and put on clothing.

There is marked Rombergism.

The patient's writing was markedly defective, the letters being badly formed and irregular, and she left out letters in her name.

Abnormal Contractions: There were slight fibrillary contractions or spasms of left upper eyelid and left corner of the mouth. There was a worm-like movement of the thumb and big toe (hyper-extension), possibly a form of athetosis.

Tremors: Slight of the tongue; of lips (slight), when speaking or drinking. Of fingers; changeable tremor or irregular movements; at times fine, at other times coarse, as if involving arm, wrist and hand. This tremor increased on attempted action, or when emotional excitement was great.

There were no Babinski's, Gordon's or Oppenheim's sign.

Reflexes: Biceps and triceps brisk. Knee jerks absent, even on reinforcement and distracting the patient's attention.

The right naso-labial fold slightly more prominent than left.

Spine: Some scoliosis to the left, and slight lordosis.

Ocular fundus normal. No apparent retinal or optic nerve atrophy.

Gynecological Report: Organs infantile, with a suggestion of a previous endometritis, and swollen uterus. A smear showed gonococci.

Wassermann Reaction: Negative.

Cerebro-Spinal Fluid: After many efforts at two different times we were unable to secure any spinal fluid.

Clinically this case presents the findings of juvenile paresis.

The gynecological report; the dry puncture, and the negative Wassermann, should be discussed.

PERINEAL LACERATIONS.*

T. H. LEWIS, M. D.,

MARTINSVILLE, ILL.

It is not the purpose of this paper to tell you anything new and startling, but merely to call attention to an every-day class of cases, which, in the shuffle of a general practice, many of us are prone to overlook, for in Clark county, as in most rural communities, the obstetrician and the general practitioner are one and the same man.

So it may be well to briefly review the anatomy of the female perineum, the cause of lacerations, classes, results, occurrence of lacerations, and treatment, both prophylactic and curative.

Anatomy: Anatomically speaking, the perineum is that diamond-shaped space bounded in front by the symphysis pubis, posteriorly by the coccyx, laterally from before backward, the rami of the pubis and ischium, the ischial tuberosity, and the great sacro-sciatic ligament.

From an obstetrical standpoint the perineum is considered as that part of the anatomical perineum, which is between the fourchette and the anus.

The structures which form the floor of the perineum are from without inward, the skin becoming continuous anteriorly with the mucous membrane of the vagina and posteriorly with the mucous membrane of the rectum, outer layer of superficial fascia, anterior fibers of the sphincter ani, posterior fibers of the vaginal sphincter, and transverse perinei muscles, all blending in the central point of the perineum, deep layer of superficial fascia, triangular ligament, and levator ani muscle.

The various component parts of the floor are normally the support of the pelvic organs. Each structure named is by itself a factor in this support, some to a greater extent than the others. Formerly it was believed that the levator ani muscle was the one essential factor, but now most authorities agree that as important as is

this muscle, the fascial layers, especially the triangular ligament are of greater importance.

Causes of Lacerations: Text-books give us quite an extensive list of the causes of lacerations, but it seems that the question should not be why we have lacerations, but rather why we do not always have one when a large, solid object is compelled to pass through an opening $\frac{1}{4}$ or 1-5 the circumference of the object. True, the structures surrounding the opening are elastic and skillful management of a normal labor allows the tissues to be gradually and gently stretched, but there is a very definite limit to this elasticity. Then again, lacerations would be much more easily avoided if the vaginal orifice were in the center of the pelvic floor rather than so far anterior. Then, we do not always have normal labors to deal with. Precipitate delivery, from the viewpoint of pelvic floor injuries, is a more serious abnormality of labor than any other one, especially in the virgin. In this case, if the head is of average size or larger, we are practically certain to have a laceration.

Use of forceps is considered by a great many among the laity, and even some among the profession, as being the cause of most lacerations. While many lacerations have undoubtedly been caused entirely, and inevitable lacerations made more extensive by the unskillful use of forceps, it is not my opinion that the proper and intelligent use of forceps ever produces an avoidable laceration or aggravates an unavoidable one.

Classes: Lacerations are usually classified as (a) external or superficial tears, (b) internal or deep tears, and (c) complete tears. Vaginal tears, anterior and lateral, are occasionally met with but are rare and of minor importance and, due to lack of space, will not be considered in this paper.

External or superficial tears are those in which only skin and mucous membrane are involved. Internal tears are those in which muscle and fascia are torn in addition to skin and mucous membrane. Complete tears are those which extend clear through into the rectum.

Results: The first class are sometimes of little consequence. The pelvic floor is not weakened, even if the injury is not repaired. Sometimes they heal by first intention, leaving no disagreeable results whatever. At other times they become infected, and if this infection does not start

*Read at annual meeting of Clark County Medical Society, April 8, 1915.

a mild septicaemia or as in rarer cases, a severe one, it at least when healed leaves a more or less irritating scar.

Lacerations of the second and third classes have much more serious results if not repaired. In addition to the probability of infection and the almost certainty of the formation of an irritating and dangerous cicatrix, the support of the pelvic organs is destroyed, the muscles become atrophied from disuse, the rectum, bladder, uterus, tubes and ovaries, prolapse, setting up a never-ending train of distressing symptoms, and in the third class as well there may be a partial or complete incontinence of feces.

No woman in this condition can enjoy life and, in the words of some authority, just whom I can't recall, the woman with the cancer, who fears she is going to die, needs sympathy and assistance not so much as the woman with the old unrepaired lacerated perineum, who fears she is not going to die.

Occurrence: I have purposely refrained from reading statistics regarding the frequency of lacerations and of discussing this subject with my colleagues, so that I might ascertain in the discussions of this paper how my observations coincide or fail to coincide with your observations and with the statistics of the authorities. In my practice 80 per cent of primiparae and 30 per cent of multiparae suffer lacerations of a greater or lesser degree, varying from a slight superficial tear to those of considerably greater extent. A mighty poor obstetrician I can imagine some of you are saying. Perhaps that is so, and I would feel greatly humiliated, were it not for the fact that 60 per cent of all women who have borne children and been cared for by other physicians and later present themselves for gynecologic examination, show unmistakable evidence of an old unrepaired laceration. When we remember that undoubtedly some of the other 40 per cent have been torn slightly and have healed by first intention, leaving no trace of the injury, and that some of them have been torn and skillfully repaired, it makes it seem as though other physicians also have a rather high per cent of lacerations. Of course, this method of deduction is not conclusive, as we will all admit that the women who have escaped pelvic floor injury during labor, are much less liable to have occasion to consult the physician for what they term

"female disease." But what seems the worst feature of this record is that of the women who show evidence of an old unrepaired injury, at least one-half assert that their physician assured them that there was absolutely no tear. The one encouraging feature is that the largest per cent of this class of cases is among the women who bore children from 20 to 40 years ago, indicating that the profession is either becoming more skillful in avoiding lacerations, or else more alert in recognizing and treating them.

Treatment: Prophylactic. First, give nature all the time it needs in perineal stage of labor and then a little additional time. Prevent birth of head for at least 30 minutes after perineum begins to bulge, in primiparae, and half as long in multiparae. To accomplish this, use direct pressure against the head during pains, and if this does not suffice, give the patient enough chloroform to retard the pains to the necessary extent. When relaxation is as complete as you can expect to have, push the head well up under the pubic bone as it is allowed to escape.

Second, in no case use forceps until necessary, and then try to remember the proper course for the head to take in its passage through the birth canal.

In many cases of abnormal labor, eclampsia, mal-position, etc., these rules cannot be followed. Then one must use his best judgment and choose what seems the lesser of two evils.

Third, in any case where a severe and extensive laceration is inevitable, episiotomy should be performed. This is best done by use of scissors during the height of a pain. The incisions should be made, one on each side of the vulvovaginal orifice, at right angles to the normal vaginal opening and slightly behind the median line. The length of the incisions should depend upon the probable extent of the inevitable laceration. The object of this operation is to substitute two small, clean, lateral tears, through comparatively unimportant structures, for a more serious, rough posterior tear.

When labor is finished and you find that, in spite of all precautions, you have a laceration, do not hesitate to inform the patient and her family of the fact. It is not going to put you in nearly so bad a light as it would to do otherwise, and have them find out afterwards, which in these days they are certain to do sooner or later.

As to immediate repair—this will depend upon the extent of the injury and the local and general condition of the patient. As a general rule, stitch up all open wounds as a means of preventing infection. When the parts are not over edematous, and the general condition of the patient warrants it, attempt to reunite all torn structures and sew them securely in place.

When there is a great deal of swelling, or the patient, from exhaustion or other cause, is unable to undergo complete repair, merely cover up all open wounds, and inform the family that a subsequent operation will be necessary as soon as the patient recovers sufficiently to warrant it. Then there is no excuse for the operation not being done early if not immediately after labor.

In cases of old unrepaired lacerations an operation should be advised as soon as they come to our attention.

References: 1. Ashton, Practice of Gynecology.

2. Jewett, Practice of Obstetrics.

3. Cunningham, Practical Anatomy.

PROGNOSIS IN EYE INJURIES.*

RICHARD J. TIVNEN, M. D.,
CHICAGO.

The subject of the prognosis of eye injuries is an extensive one, and it is manifestly impossible in a brief paper to more than generalize. I shall attempt, therefore, only a discussion of a number of factors which appeal to me as of especial value in estimating a prognosis, and shall refer in detail to a number of special types of injuries which appear to me as of particular interest. The term "prognosis" has been defined as "A forecast as to the probable result of an attack of disease." Probably no part of a physician's duty is more difficult than that of giving a prognosis. In eye injuries this difficulty is, if possible, greater than in any other class of cases. To the lay mind there is a sympathy and dread associated with a loss or impairment of sight which has no corresponding parallel in injuries of other parts of the body. An intelligent prognosis is predicated upon the results of examination and the evidence obtained from clinical observation. In its ultimate analysis the ques-

tion of prognosis is a question of diagnosis and the consideration of a prognosis must then of necessity deal in greater part with the elements entering into a diagnosis.

The examination is the first element in the investigation of an injured eye and the first element also which contributes data for our diagnosis. It is of paramount importance therefore that a procedure upon which so much depends should be painstaking and exhaustive, in order to obtain the largest yield of information. It may be profitable to review briefly a few elementary principles which are of practical value in conducting such an examination.

First, as to the history of the injury: Apart from those cases of eye injury, like burns from lime, molten metal, etc., in which immediate relief is demanded and in which the history is quickly obtained, it is wise to pause before hastily beginning the eye examination proper to ascertain the history of the accident.

This "advance information" is of especial value and may suggest a suitable method of procedure. For example, if the history given is that of a sharp instrument, like a scissors, penetrating the globe, we should be prompted in consequence to conduct our manipulations with the utmost caution to avoid increasing a prolapse of intra-ocular structures. If such a case be that of a very young or nervous child whose co-operation is uncertain, a general anesthetic may be advisable.

Next in importance to obtaining the history is the precise method or technic employed in conducting the examination. It is the common experience that only brief inspection of an injured eye, particularly in children, is possible, and in order that much may be gained in the short period available, a definite plan of procedure should be instituted. This routine observance of a number of practical working details will aid materially in the results desired. The following five "first-aid" measures are of distinct value:

First. The position of the patient during the examination. If possible, he should occupy the recumbent position, in such a position the patient is more relaxed and more likely to be calm than if seated.

Second. Good illumination. This is an ab-

*Read before the Chicago Ophthalmological Society, April 20, 1914.

solutely essential; few examinations may be conducted satisfactorily without it.

Third. Specific instruction to the assistants.

Fourth. Arrangement of a dressing table containing the various lotions, irrigating solutions, dressings, instruments, etc., conveniently located, so that they may be easily and quickly procured.

Fifth. Use of local anesthetic. Before attempting to separate the lids for the inspection of the globe, it is a wise provision to gently evert the lower lid and instill a drop of two per cent. cocain solution. This counteracts the blepharospasm, induces anesthesia, and materially assists the examiner.

In addition to the foregoing, the following details of investigation are of distinct service, in their respective appropriate application.

1. Smears and cultures from wounds, ulcers and infections of neighboring structures. These not only supply one with a precise knowledge of the specific pathogenic microorganisms present, but in addition provide the material for vaccines.

2. Blood examination and Wassermann tests: In the case of a positive response to the Wassermann test, this knowledge might explain the clinical course of an injury which might otherwise offer considerable difficulty of interpretation.

3. Urinalysis, both chemical and microscopical is an absolute essential in all eye injuries.

4. Testing of visual acuity, perception and projection field of vision for form and color. It is a common experience that serious affections of the optic nerve may remain for a considerable period unsuspected, owing to the fact that central vision shows no particular impairment. In such cases changes in the field for form and color may be the first warning of such impairment.

5. Skiagraphs: In all cases of suspected foreign bodies penetrating the globe, the body itself must be accounted for. The absence of a "wound of entrance" or injury to the structures of the anterior quadrant of the globe does not point with certainty to the absence of a foreign body being within the globe itself or within the orbital tissues. One skiagraph is seldom sufficient upon which to base an opinion; at least two should always be taken. The surgeon should

learn to interpret the plates himself; such a study will well repay the effort expended.

6. The electric magnet. This instrument is an indispensable aid in the case of retained magnetic foreign bodies. A negative response to the magnet test, however, is not to be accepted as a positive proof that a magnetic foreign body may not be retained within the globe.

In connection with this consideration of what may be termed "therapeutic details" which have an important bearing on the prognosis, two types of injuries suggest themselves, first, foreign bodies in the cornea; second, ulcers resulting from such trauma. These two are selected because they are common types of injuries and complications of injuries, because the plan of conducting their treatment influences so greatly their prognosis and because in no class of cases is the penalty for sins of "omission and commission" so serious.

As an example of the omission of important details of treatment, is the not uncommon practice of omitting to apply a protective bandage after removing a foreign body from the cornea. The wisdom of protecting such a traumatized cornea until the epithelial surface has regenerated and closed the atrium of infection is beyond dispute; and yet, how frequently do we yield to the patient's entreaty to forego its application and trust that all will be well. A large majority of the cases of corneal ulcers is due to foreign bodies, and this fact alone is a sufficient reason for insisting that no protective measure be denied an eye suffering from an injury which exposes it to such a serious complication.

An equally common sin of commission is the practice of permitting a patient with a corneal ulcer to make daily visits to our office for treatment or to continue work during the treatments. No one will deny that such a patient should have absolute rest for the affected eye, and that he should not be permitted to continue using the uninjured eye because of the irritation it necessarily provokes in the injured one.

The judicious, early and energetic treatment of corneal ulcers bears an important relation to the question of their prognosis. Every slight encroachment of the destructive process entails a corresponding loss of visual function, small though it be, due to the loss of transparency which results. As MacNab concisely expresses

it: "The fall in the economic value of the individual due to any loss of transparency in that small area, is so out of proportion to the actual damage done, that it makes the cornea one of the most important structures in the whole body." Apart from the element of physiological rest required for an eye affected with a corneal ulcer, three other therapeutic measures should be mentioned. First, determination by smear and culture of the specific pathogenic micro-organism present; second, cauterization; third, sub-conjunctival injection of cyanide of mercury. These are well recognized in the treatment of such infections. They are mentioned, however, to give emphasis to the point, that they should be used early in order to obtain the best results. We are indebted to Dr. Harry Woodruff for directing our attention to the value of cyanide injections in infective ocular processes and for advocating their early exhibition in such cases. The value of various serums and vaccines in the treatment of ulcers, is still undetermined.

In the foregoing class of cases, foreign bodies in the cornea and corneal ulcers, a number of other important factors should be taken into account in estimating the prognosis. Among these factors may be mentioned the age of the patient. In old people both the resistance to infection and the regenerative capacity is usually minus. The prognosis of such pathological processes occurring in the aged should therefore be reckoned with caution. In the same category is to be placed patients who suffer from purulent processes of neighboring structures, such as dacryocystitis, disease of the nasal accessory sinuses, or who are subjects of general constitutional disease, such as syphilis, tuberculosis, diabetes, nephritis, etc.

As illustrative types of ocular injuries I have selected a number of the more commonly encountered traumas occurring in my own experience in which the prognosis presented more or less difficulty.

Illustrating the importance of making a smear and culture in eye disease, the following case occurring in the practice of a colleague is cited. Paranthetically, I may state that I cite cases of this character as pertinent to my subject, because of the fact that in the industrial world a large number of cases of this kind present themselves, giving a history that a foreign body as

dust, cinder, etc., getting in the eyes was the inception of the eye trouble. Such a case was that of an adult, who presented himself to his physician giving a history of cinders having blown into his eyes the day previous. No foreign bodies were discovered, a slight conjunctivitis was diagnosed, the appropriate lotions ordered, and the patient directed to return. He did not return as directed, but about a week later appeared with a fully developed case of Neisserian infection involving both eyes. He admitted at this time suffering from a chronic urethritis. Owing to his lack of co-operation and general antagonism to the treatment, corneal ulcers developed, and subsequently resulted in loss of vision in both eyes.

The advantage of utilizing the Wassermann test in cases which exhibit a clinical progress quite inconsistent with the history of injury is illustrated by the case of a patient whom I saw suffering with a severe iritis, dating from a supposed injury.

While uncoupling an air connection between cars, the exhaust air, he stated, blew into his face. A few days later he developed an iritis. The severity of the iritis seemed out of all proportion to the history and no evidences of injury being discoverable a Wassermann test was made, which proved frankly positive.

The prognosis of injuries to the eye in which a foreign body is retained within the globe, removal of same being found impossible.

Ophthalmic surgeons are unanimous in the opinion that a retained body in the eye, incapable of being removed, spells disaster to the eye affected. The literature records occasional cases where foreign bodies have been tolerated for considerable periods in an eye without exciting destructive inflammatory reactions, but these rare instances in no way negative the dictum that all eyes harboring such invaders must be reckoned as lost. Fuchs records that "the prognosis must be stated as almost absolutely unfavorable when a foreign body has been left in the eye."

A brief reference is of interest as to the tolerance of the eye to various bodies. Experimenting on rabbits, Leber, quoted by Wurdemann (*Injuries of the Eye*), found that, "a piece of gold wire remained in the anterior chamber 269 days without causing reaction, also that gold and silver remained in the vitreous for a year without

causing inflammation, but proliferative changes occurred in the retina and vitreous with partial atrophy of the nerve elements."

Reaction varies according to the specific tissue involved. The uvea, particularly the iris and ciliary bodies are especially susceptible to reaction, the vitreous and retina next and the lens least. Aside from the size and shape of a foreign body—small and blunt bodies occasioning less reaction than large and sharp ones—certain other factors determine the tolerance of the eye to the foreign body.

First: Infection. The body must not be infective or carry infective material in its passage to be retained within the globe.

Second: The chemical character of the substance introduced. Glass is best tolerated by the ocular tissues since it excites no chemical change. Chips of metal, even if sterile, are oxidized, and are chemical irritants; almost invariably they produce inflammation of a severe type, deposit pigment which results in a staining of the tissues known as siderosis bulbi. This discoloration of the tissues is sometimes of value in reaching a decision as to the presence of a body when other diagnostic measures have failed. Copper is particularly dangerous and excites more chemical irritation than iron or steel. The location of such bodies in the eye to a certain extent governs their behavior. The lens tolerates copper, iron, and steel bodies better than the other tissues; if in the vitreous, necrosis and retinal detachment occurs; if in the anterior chamber, iron and steel bodies soon become rusty, covered by fibrin and produce tissue staining; while copper in this position excites irritation easily because of its quickly entering into solution in the aqueous.

Wurde mann reports a needle point remaining in the cornea 527 days rusting and staining, however, resulted. Hirschberger states that copper in the conjunctiva or outer layer of the eye is not dangerous.

Illustrative of the tolerance of the eye to retained foreign bodies, I recall several cases occurring in my experience.

Case 1. Male, aged 34. Presented himself with a history that about a week before, while engaged in chipping metal, a piece struck him in the left eye. Continued his occupation and suffered little distress other than a slight redness of eyeball for a few days. Was sure nothing had gotten into the eye. Examina-

tion of lids and globe negative, other than a small point of conjunctival injection, at nasal-sclero-corneal junction, axis 180. No evidences of a wound of entrance visible. Vision—20/20 plus. Examination ophthalmoscopically media negative; lying on the retina, however, slightly to temporal side of disc, a small glistening body could be seen.

This proved to be a small piece of steel which was easily removed through a scleral incision and the magnet.

The case illustrates:

1. The absolute unreliability of the patient's statements regarding the foreign body; the uncertainty of depending upon the absence of a "wound of entrance"; the wisdom of making an ophthalmoscopic examination in all cases of this character; the tolerance of the retina to foreign bodies, a week having elapsed; the possibility of a small body of this character perforating the globe, passing through important tissues and exciting no inflammatory reaction or impairment of vision.

Case 2. Patient, aged 40. Presented himself suffering from a conjunctivitis, both eyes. A small, dark spot slightly elevated was discovered in the nasal sclera, 6 mm. from the limbus, horizontal meridian. A foreign body was suspected, the overlying conjunctiva incised and a small piece of steel removed. The patient recalled that about five years previously he had been struck by a chip of metal while working, but suffered no inconvenience due to its location in the free area of the palpebral fissure, and not suspecting it had remained in the eye, had forgotten all about it.

This case illustrates the length of time foreign bodies may be in the sclera without occasioning difficulty, a period of five years.

Case 3. Patient aged 24. Presented himself with a history that about three months previously, while at work, a chip of metal flew striking him in the right eye. Had suffered no ill effects at the time, and did not suspect that body had entered eye. A few weeks after accident, observed vision gradually failing in this eye; at present time can only distinguish light. Examination disclosed a mature cataract; a slight thickening of anterior capsule, together with a corresponding localized small rather dense area of opacity was observed in the lens on its anterior temporal aspect. Eye otherwise negative. The cataract was removed, and with it came away a small steel foreign body. The tolerance of the lens in this case is shown, the body being retained three months without producing untoward symptoms other than the opacity of the lens.

These few cases illustrate the tolerance which the eye tissues occasionally exhibit to foreign bodies. It is necessary, however, to emphasize that this so-called tolerance is in no sense to be

interpreted as a dependable or certain element. On the contrary such tolerances were most unusual and have occurred as isolated instances among a large experience in this class of injuries.

In all cases of this character the routine procedure should include:

1. A complete history of the accident, with special reference to accounting for the foreign body.
2. A thorough examination, including visual acuity, tension and the ophthalmoscope.
3. Skiagraphs—rarely one alone is sufficient.
4. The electric magnet.

Perforating injuries of the globe by perforating traumas or by a foreign body, which has been removed, and which have resulted either in total loss of vision or its reduction to light perception only and in which the patient declines the removal of the globe, present difficulties of prognosis peculiarly trying. This is especially true in the case of young children in whom the presence of the globe is of considerable service as an aid to the symmetrical development of the orbit and face.

The problem is not one simply of whether the injured eye will survive and prove serviceable from a cosmetic standpoint, etc., but concerns itself more particularly with the question of the dread and grave danger of a sympathetic process developing in the uninjured eye. Many factors influence the giving of a prognosis, regarding retention of the globe in such cases. Chief among them are the following:

First. The character of the patient himself; his ability to assist in intelligently and promptly estimating the condition and progress of both eyes; the degree of co-operation he supplies in the matter of reporting at stated intervals for examination, etc.

Second. The particular tissue injured, the time elapsed since the injury, the character and severity of the inflammation which resulted, whether the eye be quiet, tender on palpation, subject to outbreaks of inflammatory reactions, fluctuation in tension, impairment of light perception, etc.

Unfortunately the danger which is ever present in cases of perforating injuries, namely, the development of a sympathetic process in the sound eye, presents no well-defined symptoms

characteristic of its incipient development nor have we as yet any dependable diagnostic measures which herald its approach.

In addition we are face to face with the appalling thought that once a sympathetic process is inaugurated, we are almost powerless to stop its progress, short of destruction of the eye.

When light perception is lost, tension becoming gradually reduced and evidences of inflammatory reaction are present in greater or less degree either constant or periodic, the time for inaction is passed and the globe should be removed without delay. This is the only safe course to pursue. It is now declared that the plastic closure of the lymph spaces and vessel, which follow a panophthalmitis, does not absolutely protect against the subsequent development of a sympathetic process.

Illustrative of a type of ocular injuries, where the objective symptoms and the severe reaction presented are likely to be misleading in predicting a prognosis, are cases of injuries from electric flashes, the so-called electrica ophthalmia. In this class of cases the external evidences of severe injury, such as great swelling of the lids, chemosis, etc., and the distressing subjective symptoms, such as blindness, pain, photophobia, etc., would lead one to expect a more or less considerable damage to the eye involved, and a grave prognosis might, therefore, be anticipated. Keratitis, retinal changes and opacities of the lens occasionally occur.

Experience, however, has demonstrated that the blindness is of a very temporary character, only exceptionally keratitis, lens opacities or permanent retinal changes result, and that the intense inflammatory reaction of the lids and globe likewise subside, as a rule, without impairment of these structures.

Cases of acute glaucoma following a needling operation for secondary cataract, are not properly a consideration of my subject. I include them, however, because a large number of eye injuries produce a cataract and a subsequent needling of the secondary cataract is frequently necessary; and to suggest a word of caution in the perhaps too ready assurance of the surgeon, "that the operation is entirely devoid of danger."

In the symposium on "Senile Cataract," before this society in November, 1911—as a part of my

contribution to the subject—I presented the replies of 160 ophthalmologists to a series of questions pertinent to the subject. One of the questions submitted was: "What difficulties have you experienced with the needling operation?" Of the 160 who responded 9 (5.6 per cent.), replied that they had encountered acute glaucoma following the needling; thirty-two (20 per cent.) replied that they had experienced such difficulties as infection, iritis, iridocyclitis, pan-ophthalmitis, etc.; three (1.8 per cent.), replied that they had experienced loss of eye. These data emphasize the fact that while a "needling" operation may be considered usually an operation of relatively little hazard, it can by no means be assumed that it is one of perfect safety.

Burns of the eye particularly the cornea from alkalis, soda, potash, lye, and ammonia, are very deceptive, so far as prognosis is concerned.

A lime burn of the cornea, for example, at the outset may appear to be only a superficial injury, but subsequently may result in extensive necrosis, eventuating in dense leucoma, or possibly perforation, pan-ophthalmitis, and loss of the eye.

Burns from alkalis are of graver import, as a rule, than those from acids. The sensitiveness of the cornea, may be an index of the probable extent of damage to this structure likely to develop. If its sensibility be greatly impaired considerable necrosis and sloughing with the usual pathologic sequences such processes entail is to be anticipated. Owing to the exceedingly deceptive character of these injuries and the absence, at the time of injury, of clinical evidence upon which to estimate the extent of trauma, considerable caution and reservation, therefore, should be exercised in stating the prognosis.

In incised and lacerated wound of the cornea and sclera the prognosis is greatly influenced by the method of repair. In this connection I wish to testify to the advantages of the sliding conjunctival flap as a method of repairing such injuries. It supplies an efficient splint to the injured tissues, prevents prolapse, insures approximation of the lips of the wound, and thereby closes the atrium of infection and promotes early union. The difficulty of applying scleral sutures, the inadvisability of corneal ones, the exceeding difficulty nearly all wounds of this character present to the carrying out of a complicated

operative repair—recommend such a comparatively simple procedure as the sliding conjunctival flap offers.

For a considerable period I have used this method of repair in this type of injuries, and my confidence in the method has greatly increased.

In conclusion, I desire to add that in the foregoing consideration of the prognosis of ocular injuries I have endeavored mainly to dwell upon and confine myself to a consideration of what might properly be designated "the first principles" underlying the estimating of a prognosis, without trespassing to any great extent upon the question of the proper treatment of the injury itself.

104 South Michigan avenue.

THE PRE-INSTITUTIONAL CARE OF THE INSANE.*

METHODS USED IN COOK COUNTY FOR THEIR APPREHENSION, DETENTION, COMMITMENT AND CONVEYANCE TO STATE HOSPITALS.

C. C. ELLIS, M. D.,

Physician, Chicago State Hospital.

DUNNING, ILL.

The physician in this community who is called occasionally to attend or diagnose a case of insanity usually loses sight of the patient and his welfare after the first steps are taken to place him in a state hospital. I want to bring your attention then to that period in the insane patient's life which, in a narrow sense, I have called pre-institutional, and refer to the treatment accorded him. It is at this time he almost always falls into the limbo of the law and many are the vicissitudes that many attend him. I have found in this a rich field for investigation. I will describe chiefly the conditions in Cook County, though I could speak from some experience of conditions in other counties. Little writing on this subject has gained any wide circulation. In 1910 Dr. Bybee, formerly of Elgin State Hospital, wrote and published under the auspices of the Illinois Society for Mental Hygiene, a report embracing statistics showing the sources of 2,000 cases arriving at the Detention Hospital in Chicago. He described the usual mode of their conveyance thereto and their es-

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corts. He was surprised at the large number of cases handled by the police alone and was appalled at the misery sick and insane people are often subjected to in police stations. His recitation of the sober details is enough to shock anyone believing this to be a country highly civilized or scientific, and governed by humanitarian principles and the Golden Rule. It suffices to say he found the conditions in most of the lock-ups to be vile as to sanitation, furnishings, environment, etc., and atrocious treatment accorded to mentally disturbed and sick patients.

POLICE STATION ACCOMMODATIONS.

I have not had the privilege of spending time to investigate all the present jail conditions, but this work has been ably done by Miss Vella Martin, an investigator under the direction of the State Charities Commission. In the *Illinois Institution Quarterly* of September 30, 1913, there appeared a full report of all the jails and lock-ups in Illinois. Turning to Chicago and reading the descriptions of the conditions in the first 20-odd precincts listed, one will obtain a good idea of the remainder:

The Harrison Street Police Station in the Second precinct is characterized as "unfit for the housing of animals." The third precinct cells are described as "wretchedly damp, dark and ill-ventilated," with planks for beds. There is one cell equipped with a high wooden chair for strapping insane patients. The station is insanitary and unfit for confinement of human beings. Fourth precinct—"damp, dark and miserably ventilated. Planks for beds." Sixth precinct—"Toilet arrangement consists of troughs in backs of the cells, flushed by means of flowing water." Planks for beds. Women placed in two cells in adjoining room. Mattresses furnished, but troughs with running water for toilet facilities. "Station is absolutely condemnable." Eighth precinct—New, four years old. No provision for insane. Insane are taken to Harrison Street Station, the one described above as unfit for housing animals. Tenth precinct, said to be slightly above average police stations in Chicago. "One great evil is the lack of provision for insane. A wooden chair has been placed in corridor and here insane people are strapped until city physician can arrange for examination." Eleventh precinct—"No provision for insane necessarily detained here at times. . . . Unfit

for confinement of human beings." Thirteenth precinct—"No provision for insane, though frequently received." Fourteenth precinct—"Insane are placed in separate cell. Strapped when necessary." Fifteenth, Seventeenth, Eighteenth, Nineteenth—"No provision for insane." Twentieth—"Insane transferred to Twenty-second street station." Twenty-first—Troughs for toilets. "No provision for insane." Twenty-second—cells are characterized as worse than stalls for horses. It is needless to recite more. Imagination can do the rest. I presume a few changes for the better in the accommodations of these lock-ups are made from time to time. But not very long ago a municipal bond issue was voted down that was intended to cover many betterments and as matters stand we can hope for little improvement until architectural changes or rebuilding is accomplished.

POLICE HANDLING.

It is needless to emphasize, what we must appreciate, that great damage is possible and is done to the insane by unskilled handling during the manifestations of excitement which characterizes many psychoses in their early stages; states of apprehension, fear and hallucinosis, irritability, suspicion, and clouding of consciousness may be present. The policeman in uniform is usually regarded by the patient as a menace. Often his handling results in a direct physical injury. Insane patients in these early stages many times experience a feeling of strangeness. Often partial insight into their own mental derangement is with them, and their own unavailing and misdirected efforts to make or seek explanation, coupled with their recognition of the fear and distress of those about, is added to by the shock of being handled with more or less force and thrown into a conveyance—labeled in the public mind with the foregone conclusion of guilt—the police patrol. When this experience is protracted for hours in some uncomfortable cell, followed, possibly by trial, before being conveyed to the Detention Hospital, we can imagine the impressions received. With those more amenable to control, or merely suspicious, we find deception used to some extent. They are inveigled to the door of the police station and left to exert their strength, both physical and mental, in endeavors to become released. These cases, especially, retain the impression

that they have been wrongly dealt with. The use of deception is quite prominent in the handling of a large number of cases, even when these patients are taken directly to the Detention Hospital by relatives or friends and often by representatives of organized charities. They come embittered to the state hospitals. If such means be used, they reason, there are, no doubt, more hidden purposes and this adds to their perplexity and resentment. We can say, of course, that many such incidents will always arise unforeseen and will be uncontrollable by any prescribed methods, but our efforts must be directed toward minimizing the possibility of their occurrence.

One advance in the handling of patients prior to their coming to the Cook County Psychopathic Hospital has been made recently. The hospital has the use of a County Hospital limousine to bring in women patients. It is a comfortable machine and is available from eight to nine a. m. to some time in the evening, but cannot be obtained late at night at the time when it could be used to the best advantage in preventing the patient from spending the night in cheerless or worse surroundings, or preventing a patrol wagon ride for her. This ambulance, in fact, is often called to the police station to get a woman held there. An effort has been made to have all police lieutenants direct officers to send for the hospital limousine, but on two occasions during my visits to the Psychopathic Hospital women have been brought there in patrol wagons. One officer said they "were going that way and might just as well pick her up." The other professed entire ignorance of any other provision for insane women. Ambulances are needed for continuous service and should be called direct to the scene of the patient's disturbance or apprehension even if she be in the hands of the police, and not to the police station. No special provision exists for men, but this is quite as urgently required, as men are usually more viciously handled by police, neighbors or family. The atrocities that occur would not happen so frequently if the facilities to obviate them were at hand. The matter is one for energetic education of the whole public, even including the administrators of general hospitals, as they have been known to engage police patrols to call for and transfer patients from their doors to the Psychopathic Hospital, their own machines being too

good or their force not considered able to handle one insane person.

The Society for Mental Hygiene is responsible for the following story: A pathetic old man called at their office almost heartbroken. He had been sent from the office of the Clerk of the County Court where he had gone with his troubles. His wife had been mentally ill for some time and he was over seventy and quite decrepit. His wife would not leave the house because of her fears, and had finally gotten to the point where she was not willing that he should go out. It became necessary that she be committed. The family physician issued the certificate and the old man was told, after obtaining the necessary papers, to hand them to the nearest police station and they would see to the transportation of the patient to the Detention Hospital. A little later a patrol wagon drove up in front of his house with two uniformed policemen and already occupied by two drunken men. The man refused to allow them to take his wife and it was to report this situation to the County Clerk that he came to the Society for Mental Hygiene. They were able to obtain sufficient funds to secure a carriage and one of their nurses, unassisted, took this poor old lady to the hospital.

I wish to make this point here, that the handling of the insane at such times is as much a medical problem as any other aspect of their care or treatment during the later developments in their psychosis. Perhaps in some respects it is the most important phase of treatment as viewed by the patient himself. I wish to arouse you gentlemen to a full realization that the medical profession is deprived of the opportunity of rendering aid or continuing care of a patient at this critical juncture. Of course, I bear in mind that many cases of insanity develop that are never handled by medical men, or are not seen by them just prior to their apprehension and for that reason they are not guided directly to the agency having the proper jurisdiction and facilities—a psychopathic hospital. No conscientious physician would wish to lose sight of his insane patients until they are placed in fit surroundings. But no ambulance service, either public or private, is available equipped for such special service, as exists for surgical or other cases.

MISTAKES OF COURTS.

As to methods of municipal courts, I constantly hear stories of treatment sometimes brutal and, if not brutal, certainly not enlightened treatment, and strangely unsuitable for insane people. Many of the cases coming to my own service tell of imprisonment in the House of Correction where fines have been worked out wholly or in part before the patient was recognized there as insane and sent to the Detention Hospital: 101 such cases occurred in 1914. In many instances the complaints leading to these imprisonments have been lodged by the patient's own family, first with the police sergeant, then with the arresting officer. Often the police examination is superficial, the only complainant being the arresting officer, or where more witnesses appear the examination is perhaps colored by the testimony of irate relatives or neighbors, and prompt disposition is made of the case, only to have it revert to the Detention Hospital after more symptoms of insanity are shown at the Bridewell. The Court of Domestic Relations occasionally sifts out by its meshes a case of incipient paresis, dementia praecox, or borderline case by having specialists constantly in attendance, and quite often secures a voluntary admission to a hospital for the insane. With less contact with the police, there would be less opportunity for mistakes by courts. The Personal Service Bureau of the Jewish Charities quite frequently comes in touch with insane individuals and occasionally employs a private conveyance to get them taken to the Detention Hospital.

DETENTION PENDING COMMITMENT.

Referring to the detention of patients pending commitment, I will state that there is only one Psychopathic Detention Hospital in Illinois, that of Cook County. This building recently erected is located near the Cook County Hospital at corner of Wood and Polk streets, on the County Hospital grounds. The building is well designed and equipped but lacks appropriation to fully man it. It has a capacity of 200 beds, but as the law only permits the detention of patients for ten days, pending commitment, the present rate of admission will not fill it. The county physician has his headquarters at the Detention Hospital and is its superintendent. He also has an office downtown and is called in

consultation on private cases. He receives a salary of \$3,500.00. The only other medical attendant provided for is a resident physician, who is a salaried interne receiving \$900.00, room, board and laundry. He is subject to the county civil service. At the writer's last visit the position was vacant and at least two on the eligible list had refused or waived appointment on account of inadequate salary. Several graduate nurses, two or three pupil nurses and 22 attendants, both male and female, divided between three eight-hour shifts, constitute the remainder of the force. The building will require many more if all the floors are opened up. Only a comparatively small part of the building and equipment is now in use. The nursing and attending force are only in a few instances trained and equipped for this special field of nursing. The force is inelastic, being under County Civil Service and having no connection with a state hospital. This hampers work as it allows of little selection of material that has proved especially adaptable. If any were sick or left the service, the superintendent complains, he could not readily fill their places. This also hinders prompt handling of those cases of abuse of patients that are the bane of any service among the insane.

Admission to the Cook County Psychopathic Hospital, the present management claims, is very easy. A patient may voluntarily enter. Any patient brought in accompanied by a doctor's certificate is held pending the furnishing of regular papers, which consists of a sworn statement of a physician and witnesses as prescribed by law. The patient is then held until the following court day, which is usually Thursday.

EXAMINATION AND CARE.

In the meantime, whatever examination is made is recorded in hasty notes by the intern. A more or less complete physical examination is given, depending on the interest in the case. The mental examination is not extensive, consisting mostly of incomplete descriptions of the patient's general appearance and manner and statements gleaned from his mental stream. As a rule no close or careful analysis is made of the case. The intern is forced to make all notations in long hand and, needless to say, these are quite scanty and unsystematic. The nurses' observa-

tions are wholly inadequate to convey a correct idea of the patient's mental phenomena. The records are retained at the Detention Hospital and are not available for any reference at the State Hospitals. The medical treatment is fairly complete. Sedatives are quite freely administered. Certainly there is no such abuse of these as often exists in the general hospitals in this city, which are almost without exception totally unfitted to care for excited and violent patients and where sedatives are sometimes given until the patient actually suffers an intoxication psychosis in addition to his other disabilities. For instance: Mrs. H., a maniacal case seen by me, had been given, prior to entering the Detention Hospital, bromides 30 gr. every two hours; morphin as often as necessary by hypodermic, gr. $\frac{1}{4}$; hyoscin, 1/100 gr. every four hours.

2. In a case of paresis reported to me, there had been given in the evening 30 gr. of veronal and 60 gr. of bromides. This order repeated in the morning.

COURT PROCEEDINGS.

Among the chief drawbacks in the system now in vogue in Cook County are the court proceedings. As a rule these are held once a week and until lately a vast majority of cases were committed by nominal jury trial to the various state hospitals, or otherwise disposed of. The judge, who usually presides, is, indeed, sympathetic and is quite skillful in untangling a few of the knots which come to him, yet lacks the time to investigate such cases and must rely entirely upon the scanty information read before him or elicited by him in a quick-fire interrogation of relatives and friends and the patient. Let us picture the court on a busy Thursday: At 8:30 the court convenes. Six jurors, one a physician, are present. Usually of late two medical men, constituting a commission, take their places. The witnesses step forward, the clerk of the court rises and swears them in in a few muttered words. The patient enters a side door accompanied by an attendant. The superintendent of the Detention Hospital steps before the court. He recites in a few sentences a bit of the personal history, behavior, symptoms or, perhaps, diagnosis, etc., of the patient and frequently winds up with the statement, "Your Honor, a very fit subject for institutional care." Instantly a witness is called, a few ques-

tions asked to ascertain often some of the many omitted pertinent facts, also to determine from the relatives if they are willing or desire to have the patient sent to a hospital. The Illinois Society for Mental Hygiene which endeavors to investigate these cases before they come into court, has its representative present, note-book in hand, and who may interpose a few words in regard to the financial or family concerns of the patient. The patient may be called; faced by the judge and jury or commission, surrounded by friends, neighbors, or erstwhile enemies, often by uniformed policemen, he attempts to make replies to the judge's questioning, or better, to his mind, breaks out in defense of his actions or otherwise betrays his mental condition, and before his statement is concluded he may be committed and labeled for some state hospital and the next case called. In his mind a mockery of justice has been performed. There naturally results an increase in his delusional ideas of his family or others because under oath they have made statements inimical to his cause or sworn to things he believes he never heard about. The jury or commission meanwhile perhaps has not uttered a word. Rarely does the judge give them more than a word or two of explanation. Rarely do they interpose questions or offer consent other than by silence. I have seen a jury consisting of women trying the women's cases, obviously bewildered by the rapid action of events, and curious only, in many cases. The cases of the bed patients are heard in court, then I have seen the judge and jury walk through the wards viewing the patients but not always identifying them as they pass.

LEGAL RECORDS AND INTERROGATORIES.

A physician required by law to act on the jury, sits at the judge's right hand: Into the document that reaches the state hospital—a copy of proceedings and order—is ordered written the "cause" of the patient's insanity, by inserting the *name of the psychosis* the patient is alleged to be suffering from. This illuminating document may read: "The cause is Paranoia" (Patient had paralysis agitans); "The cause is Traumatic Insanity" (Patient had dementia praecox) "The cause is Aleoholic Delirious Insanity" (Patient had epilepsy); "The cause is Confusional Insanity" (Patient had general paralysis); "The cause is Manic Depressive"

(found to be dementia praecox); "Senile Dementia" (found to be tabo-paresis). The Superintendent of the Detention Hospital is quick to disclaim any responsibility for the diagnoses inscribed. Certainly the document is obsolete and purely legal and non-informing. Often inaccuracies are made in the mere filling out of this paper. One frequent error is the misspelling of the patient's name. The phonetic system in many instances is used with the result that patients returning to state hospitals frequently may appear under four or five different names. This only confuses the search for information if one wishes to investigate records made during former residences. This document with the warrant is usually the only paper that reaches the state hospital. An interrogatory presumably filled out by the jury or physician acting on such, or the commission, is occasionally sent to the state hospitals, frequently arriving a week or so after the case has been analyzed and brought up for discussion by the staff there. The interrogatory entries at times bear evidence of more or less illiteracy, superstition, etc., showing that relatives or friends have filled them out to the best of their ability. At their best they are inadequate to give sufficient information. In a certain percentage of cases a typed verbatim copy of the testimony offered in the court is furnished, this arriving usually days or weeks after the patient's transfer to a hospital. The information usually is worthless. At one time the Illinois Society for Mental Hygiene, a philanthropic society privately supported, and at present only operating in Cook County, would furnish a concise history in many cases and this came to hand fairly promptly but lately few have been received at the Chicago State Hospital. The superintendent, Elnora Thompson, advises that this was discontinued under the assurance from the superintendent of the Detention Hospital that he was forwarding information himself. These reports were the result of investigation by the Society's field workers who are nurses and are experienced, having worked in state hospitals. There are two attached to the county court and paid out of its funds.

FORMS OF COMMITMENT

The Illinois law provides for voluntary commitments, commitment by jury or, *when no*

jury is demanded and no occasion appears for it, the judge *must appoint a commission* of two qualified physicians in regular and active practice *to make a personal examination* of the patient and file with the Clerk of the Court a sworn report of the result of their inquiries, together with their conclusions and recommendations. The jury or commission must furnish the court in writing answers to the interrogatories that may be prescribed by the commission of public charities. I will comment here that judges should require that all necessary facts on which commitment is based, be recorded on these blanks or upon additional inserted pages. The blanks need improvement. As to patient's examination, a full personal examination of all the cases coming to the Detention Hospital would be a gigantic task for the members of any commission and would require all of their time and for which sufficient remuneration is not provided under the statutes.

RECOMMENDATIONS FOR REORGANIZED DETENTION HOSPITAL.

Unquestionably the staff of the Detention Hospital should make these examinations but the staff should be increased and be authorized by law to do this work. The Cook County Court has been, up to the last month, the chief user of the jury form of commitment when a nominal commission took the place of the jury. This is because the Detention Hospital has become a dumping ground, and being insufficiently equipped, everything there is designed for celerity of action. Chicago, the home of diploma mills and marriage mills, is truly the home of the insanity mill. Manned by capable people as efficiency goes but not contributing toward scientific methods in analyzing and individualizing the problems of the insane, simply conducting a clearing house for insane hospitals, providing for the rapid handling of individuals showing anti-social and extra-social traits. We can hope that the new Psychopathic Hospital will soon be scientifically organized to better these conditions, but at present it is conducted on a time-saving efficiency plan largely, the court room and its attachés being a very essential part of its mechanism whereas they should be incidental. It would seem better to have this institution, built on such a scale, under the control of the State whether as a separate

organization or connected with the nearest State Hospital. An adequate staff could be uninterruptedly maintained and a large amount of duplication of work and records be avoided. Earlier treatment of insanity could be fostered, social service and scientific research promoted. The idea of such psychopathic hospitals scattered over the State is not new. Psychopathic wards in general hospitals have been also advocated. Unless the foregoing recommendations are realized, other changes in the law will be necessary to make the Cook County Psychopathic Hospital more than it is—a mere short-time detention ward.

COMPLETE STATE CARE.

The statutes at the present expressly forbid the county care of insane patients after commitment and this practice should not be resumed. Let us hope that another expansion in the well-settled policy of State care for all insane will soon take place and adequate means be provided to establish psychopathic hospitals in different parts of the state.

CONVEYANCE OF PATIENTS TO STATE HOSPITALS.

What may be termed a travesty in the treatment of the insane is the method of conveyance of patients from court to the different state hospitals. With what degree of real care the patient may have met with at the Detention Hospital, instantly this ends when the patients are remanded to the custody of the sheriff and hurried to the various depots for dispatch to the designated hospitals. After the court is over the patients are hurriedly dressed, deputy sheriffs are assigned to them, some are strapped with wristlets and waist bands and all are bundled into busses obtained from the county hospital or a nearby livery stable. They are then taken through the streets, often over rough ways, through gaping crowds and brought to the depot and removed from the busses, sometimes by force, and taken to the coaches of the train. There is no special provision on any railroad and there is no way of protecting these patients from public gaze, no comfort or skilled attention given them at any stage of their journey. They are often taken from beds in which they have lain for days or a week and are running a temperature, have weak pulses, sores on lips and tongues.

The excited and quiet are not separated. One can imagine the bedlam that exists at these times. At the end of their journey they are hurried from the train and then walked to the hospital doors, or held at the depot until means for conveying them to the state hospital can be provided and often with a whoop and a shout, the blowing of auto horns, they arrive at the state hospital. Frequently the deputies cannot identify their charges by name, relying on the patient himself or reasoning by elimination. Ordinary shipping tags wired into a button-hole constitute a so-called improvement. Frequently the bailiffs smell of liquor. Women patients are usually brought with the men. There is often but one female escort to care for them. Dr. Bybee in 1910 wrote a vivid pen picture of his observations of the methods then in vogue. Very little has been changed since that time. Comparatively recently the Society for Mental Hygiene, by insistent demand, arranged with the county hospital authorities to use their ambulance for the conveyance of stretcher cases to the Chicago State Hospital. Such cases are quite well cared for.

Conditions all over the state are nearly as bad. Undoubtedly there is vast room for improvement in our methods of transferring patients after commitment. The law provides that the sheriff or deputy can take patients to the hospitals, or friends or relatives may be deputized. In either case we have unskilled people handling these patients. It was a slow evolution up to the time when female patients were required to be accompanied by a reputable female. We are not fearing now for the overt act of mal-treatment that a woman patient might be subject to, but our ideals in the care and treatment of the insane have advanced to a point when our measures must be altogether scientific, not legal, not purely custodial or administrative. There should be a special conveyance for the insane in Cook County to neighboring state hospitals. Special attendants must be provided. These should be carefully selected from the different state hospitals. A physician in New York State, with long experience with the conditions there, writes me that the state of affairs was little short of scandalous until such methods were inaugurated. In addition, Florida, Idaho, Kentucky, as well as other states, require

the superintendents of state hospitals to send trained attendants to accompany patients to the hospitals. Some other states, including Illinois, provide, beside those persons specifically designated, that any suitable person may be directed to act. Co-operation of county judges with the state authorities might result in immediate improvement.

SUMMARY OF RECOMMENDATIONS.

In conclusion, the following are recommended:

1. A thoroughly organized system of conveying all insane persons in the city of Chicago from their place of apprehension to the Detention Hospital should be established. For those picked up by the police or handled by others and who cannot be detained at the place of apprehension, special provision could be made at certain general hospitals for preliminary detention until taken to the Cook County Detention Hospital, or until a commission has met and examined and committed them direct to state hospitals.

2. Every effort should be made to keep insane people out of courts—all doubtful cases arriving there should be referred to psychopathic laboratories now operating in connection with some benches or to the Detention Hospital.

3. The Cook County Detention Hospital should be better organized or taken over by the state in conjunction with extension of similar service in other parts of Illinois.

4. The medical aspect of cases requiring commitment should be emphasized, the medical dictum practically final, the court relegated to a secondary position.

5. The preliminary examination should be more accurate and the records more complete.

6. The conveyance of patients to state hospitals should be restricted by law to trained attendants, and special traveling accommodations be provided where possible.

Lastly: The medical profession must inspire sympathy and a demand for these improvements in service as at present the greater portion of the public is in ignorance or holds in abhorrence the problems of the insane; and I may add this latter feeling is increased by the medieval attitude of some public officials and the overdrawn exploitation of gruesome occurrences by some of the public press.

RELAXATION OF MUSCLES IN THE TREATMENT OF FRACTURES.*

A. J. GRAHAM, M. D.,
CHICAGO.

A fracture being a typical injury it necessarily calls for special methods of healing. The modern methods of permanent extention date back to the eleventh century. Upon the introduction of plaster of Paris the fracture was looked upon

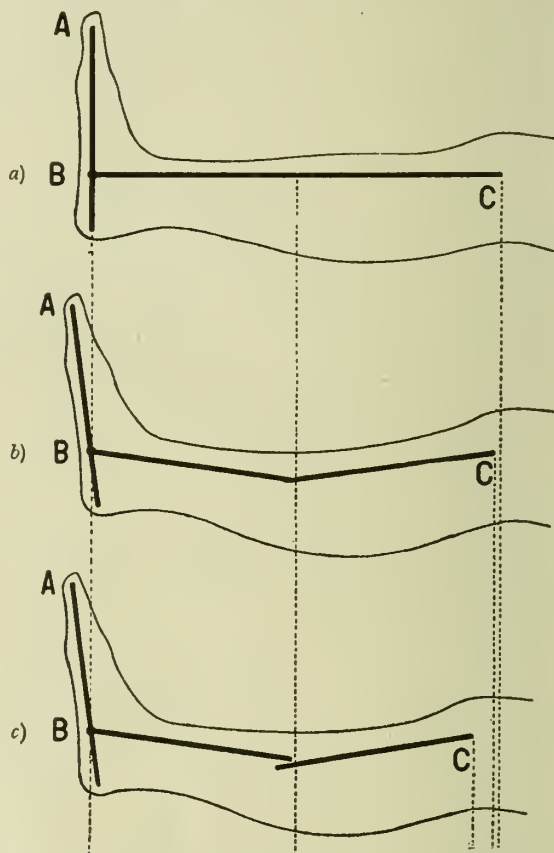


Fig. 1. Recurvation From Neglected Treatment. Foot Should Be at Right Angles With Leg.

merely as an inconvenience for a short time. Some noticed that plaster of Paris was not entirely satisfactory, leaving the affected part, or joint, in a somewhat paralyzed position, giving rise to shortening and stiffness of the neighboring joint.

Upon the advent of the radiograph the profession was astounded to find the enormity of improper union, and the faults of a plaster of Paris bandage were found to be that sometimes

*Read at the Englewood Branch, Chicago Medical Society, Feb. 2, 1915.

it became too tight or too loose, was too long or too short, caused pressure here and there, and often caused immobilization of the joints.

The extention treatment introduced by Bau-denbauer for all extremity fractures is consid-

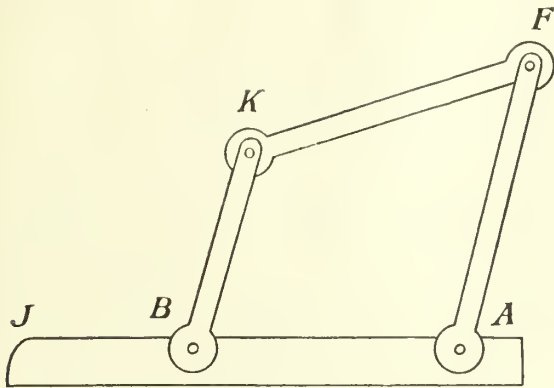


Fig. 2. Scheme of Zuppinger's Thigh Splint.

ered indispensable. Later the methods of ivory pegs and nails with massage and mobilization aided to prevent atrophy of muscles and stiffness of joint.

Tension.—The peculiarities of elasticity lie in the strength of molecules—either pushed together or separated. As soon as the working force stops the molecules return to their original form. If the limits of elasticity are reached in fragile bodies, as glass, steel, and bone, we find a separation along a fracture plane. If we exceed the

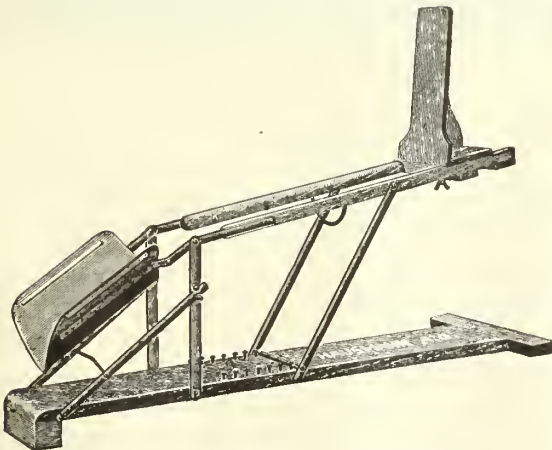


Fig. 3. Zuppinger's Thigh Splint.

elasticity in muscle tension we have a fracture. So pressure alone does not cause fracture, but it may also be due to tension. We may have, therefore, tearing, bending, or torsion fractures, according to the way the force is applied.

A study of the force which causes any injury will often give profitable information in treating it. How far the patient fell; in what position he was when he struck; and upon what he fell are all important; also the direction from which a missile came, and with what force it struck the patient. This particularly applies to head injuries, fractures and crushing injuries of the extremities and internal injuries.

Different Forms of Dislocations.—Lateral, longitudinal, angular and combination. If the fracture is complete with broad bones, shortening results. If rotation of fragments occurs, the dislocation is termed peripheral. In a fracture of clean, long bones with lateral dislocation, shortening must inevitably result.

Dislocations are primary, if due to trauma, such as those produced by over-riding in impac-



Fig. 4. Zuppinger's Automatic Extension Apparatus for Fracture of Shaft of Femur.

tion, and angular ones, produced by bending, twisting or torsion. In secondary dislocation the musculature is responsible for the displacement. If at the point of fracture, the fragments do not brace against each other, the muscle tension will result in over-riding. By far the most important effect of the muscle on the fracture is the secondary dislocation. It is noticeable as soon as the deformity. It is the most important hindrance to straightening out the dislocation, as shown in the adduction of upper humerus or femur fragments, flexion of upper fragments of radius, and in the over-riding and shortening of all oblique fractures.

There is another type of dislocation which might be called tertiary, or that which arises

through neglected treatment, as failing to put the foot at right angles with the leg in fractures of the leg. See Fig. 1.

The cause of all cases is prolonged muscle tension, or sudden stimulation of the muscle. The

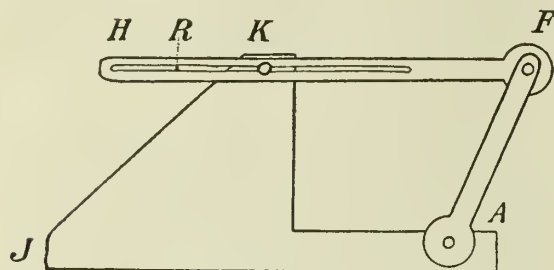


Fig. 5. Scheme of Zuppinger's Leg Splint.

location of these fragments becomes easy as the delicacy of palpation improves upon examination. The enormity of the dislocation is shown by the x-ray.

Physiology of Muscle.—If, under physiological conditions, a muscle wants to shorten itself, it can not contract without doing mechanical work. According to its position and that of the joints over which the muscle draws is its work varied. The strength of the muscle is compared with the work it must do and the shortening to be obtained to do it. The working possibilities exerted by the muscles in a fracture of the humerus is enormous for a short time.

All muscles on a live limb, at least during working hours, are under a certain tonus, i. e., finding themselves in an elastic condition, they

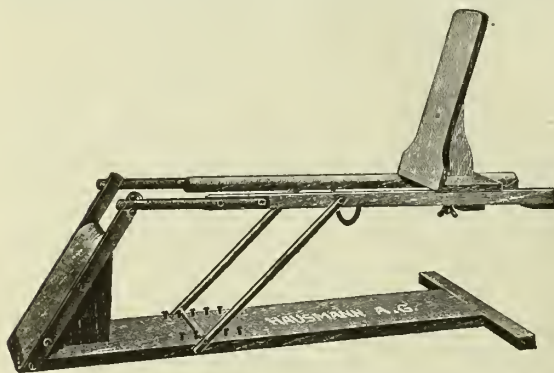


Fig. 6. Zuppinger's Leg Splint.

would have to contract, if their points of attachments were not fixed points.

Contraction, Stimulation, Shortening, Tension.—A muscle is either active or inactive. That does not mean that a relaxed muscle is inactive, or an

active one stretched. The condition of tension depends upon outside conditions, e. g., the inactive muscle weighted down becomes stretched. On the other hand an unweighted muscle being stimulated contracts, but remains relaxed.

A muscle is an elastic body, but not in the sense of the elastic bodies of physics. Muscle is also capable of stimulation, thereby differing from inorganic bodies. If we take a wire and attach a weight of 1 Kg., in order to stretch it 1 mm., we can stretch it two mm. by attaching a weight of 2 Kg., 3 mm., 3 Kg., etc., which is Hook's law, or, "In an inorganic elastic body the size of its deformation is proportional to the energy expended," which is called the coefficient of elasticity. But Hook's law cannot be applied to muscle because Weber has demonstrated that a relaxed muscle by increasing the weight becomes less stretchable.

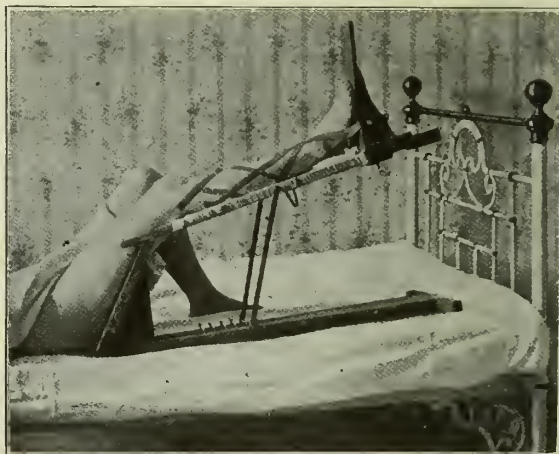


Fig. 7. Zuppinger's Automatic Extension Apparatus for Fracture of Leg.

The necessary weight for the elastic stretching of muscle is proportional to the square of the distance of the attempted stretching, or 1 Cm. needs 1 Kg.; 2 Cm., 4 Kg., and 3 Cm., 9 Kg.—*Weber's Law.*

In connection with this there are two facts:

1. If an unweighted and freely movable muscle is stimulated it contracts, but remains relaxed.
2. If a muscle attached between two fixed points is stimulated, it stretches but does not contract on stimulation.

According to our first law it is a positive fact that stimulation of muscle does decrease its original dimensions.

On the contrary, what happens through the

stimulation with the coefficient of elasticity is not explainable in a few words. Under certain conditions it remains constant, while under others, it seems to be increasing with the increasing stimulation to such an extent as to have a paradoxical muscle twitching.

So we do not follow Hook's law,

$$\frac{\text{Lengthening}}{\text{Weight}} \text{ as to the coefficient of}$$

elasticity of muscle, but Weber's law,

$$\frac{\text{Lengthening}^2}{\text{Weight}} = \frac{1 \text{ Cm.}^2}{1 \text{ Kg.}}$$

The effect of weighting and stimulation on the living cannot be compared with that of a prepared muscle. On a live muscle weighting has the same influence as stimulation. Because this weighting comes to act independent of the will, it can be called a reflex stimulation. The will cannot counteract this stimulation.

Stimulation Through Fracture.—A fracture acts on the musculature as a stimulus. We use the expression that muscle tonus is increased, or that the fracture gives a pathological hypertonus. From this we have two facts:

1. The fact that the present fracture means a stimulation to the involved musculature, or a chronic muscle spasm.

2. The same fact that works in that manner that all other stimuli, especially weighting, causes a higher stimulation than exists under normal conditions.

It is necessary to remember that attention must be paid to the fact that a fracture does not consist alone of a broken or more or less displaced bone, but is accompanied by extravasation of blood. Besides the danger of infection, draining these hematomas is said to have a bad effect upon the process of repair for the presence of these extravasates expedites the building of callus. One disadvantage, however is the resulting blood and lymph stasis which they cause.

Shortening of Muscle.—The lack of nutrition due to blood and lymph stasis may cause shortening of muscle. Aside from the separation of the continuity of bone, and the destruction of the

physiological firmness, the most important element in the pathology is the destruction of the physiological equilibrium of the musculature. Take a joint of the healthy limb not encumbered by external weight, the physiological tonus of each muscle would lead to the corresponding joint motion, if also the antagonist were not under the same tonus. The tonus of the different muscles in connection with the balance of the elastic peculiarities is so divided that in the healthy limb the least change in the position of the joint causes a muscle tension. This is the sleeping position, or for the majority of joints of the extremities the position of semi-flexion. An individual with healthy muscles and nerves unconsciously brings his joints into that position in which the entire muscle tension is least. Difference in position in sleeping is explainable on the ground that in many joints the limits of area of least tension is very great.

Disturbances of bone firmness means, therefore, a disturbance of muscle equilibrium. If a bone is broken, the muscle follows its tonus in that it shortens and displaces those bone fragments to which its tendons are fastened.

In the first hour after trauma we have a so-called muscle stupor, whereby the tonus is probably diminished. Even if it is unchanged, we have the fact that shortening of muscle causes decrease in tension. The muscle equilibrium is destroyed in people with cramps in the early morning. Here the continued relaxation has so heightened the irritability of muscle, that a slight stimulus brings forth the condition of cramp by reflex action. So the trauma of some fractures acting as a stimulus to reflex action causes such cramps that narcotics are necessary.

Therapy.—Muscle tension is the cause of most deformity. In order not to have muscle tension, you have to remove irritability from the affected part. After a few hours we have compensatory shortening, which increases up to the third day. The result thereof is to prevent antagonistic movements; that is, if a muscle is an extensor, complete flexion is impossible; if a supinator it cannot entirely pronate. It is injurious to let the muscles go till swelling has subsided for it increases the possibility of cramp, and also the so-called nutritive or compensatory shortening.

The weighting must not be unsteady, nor rapidly increased or decreased. A shortening should

never be corrected by a sudden jerk, nor by a backward or forward movement, for by such a maneuver the muscle becomes highly stimulated, so that its tension is increased, and you lose the extension already obtained.

Muscle Tension.—Inactivity of muscle. It is unfavorable to have the muscle inactive because it results in atrophy. Nevertheless it is not as destructive as compensatory shortening, nor the degenerative shortening due to overloading. Whereas inactivity, which lasts only a few weeks, leaves behind no irreparable atrophy, inactivity for months also leaves no permanent results, if only the mechanical conditions for the restoration are produced.

As soon as the callus has the required compactness, it is advisable to have small active movements. By movements right from the beginning atrophy is prevented.

Rest and Semiflexion.—Nature has given us a condition in which the entire tension of all muscles must be least, viz.: sleep. It is often necessary to have a small deviation of a joint from its extreme position in order to avoid the feeling of extreme tension. The least combined tension of muscle is where the involved joint is in the center of gravity. We designate such a mid-point as semiflexion. Therefore, it gives us a remedy to reduce to a minimum the tension of the entire musculature passing over a bone.

The best proof clinically is the extension treatment of the thigh fracture, which in full extension of the knee joint demands a weighting of 25-30 kilograms, while in the semiflexed position it takes only five or six kilograms, because tension is taken off.

Various Forms of Treatments.—Massage and active and passive movements are necessary and in general, the older the patient the earlier it becomes necessary to begin, in order to regain the complete function of the musculature.

Splints are satisfactory in that lateral and peripheral dislocations may be corrected directly by them. We have leverage on the leg from the foot, in fact every joint gives such leverage for the adjoining joint, if the interposing joint is not to be stretched. Semiflexion when leverage is used, is contraindicated.

The Circular Plaster Cast.—If we disregard the plaster cast altogether in various fractures of the leg, it remains for the practitioner to lose his case,

it going to the hospital. Where no extension can be applied, a cast is indicated for rest. As long as the practicing physician will rely upon plaster of Paris casts alone, each clinic will be richly supplied with Roentgen material. The judgments of accident statistics do not have their basis alone in deformity, but in atrophy through inactivity of muscles and stiffness and degeneration of capsular tissues of joints due to prolonged immobilization. Another case of deception by casts is where we have a dorsal or longitudinal dislocation or an ulnar abduction in a Colles' fracture take place under the cast resulting in useless fingers from fixation of tendons.

If the cast is changed too often the callus is torn and loosened and a longer time is required for a permanent one to form. In general the rule holds that a dislocation is less easily remedied, the longer the time after the fracture, except small angular dislocations, which are best corrected about the third week, when the callus is not so friable as in the beginning.

Extension Bandage.—Permanent extension. We choose permanent extension for all those fractures which would retard the function of the limb by shortening. The old classical extension demanded the extreme position of the joint. The best example of this is seen in the thigh with the extended knee and hip joint. Even a healthy person in this position would not endure the painful feeling of tension in the flexors of the thigh. This feeling is not noticed with a broken bone, because the tension is lost in the shortening which has arisen due to this tension. With permanent extension we derive the results of muscle relaxation as under moderate weighting in a favorable position of the joint, the muscle loses its pathological hypertonus.

Counter Extension.—Counter extension is obtained by raising the foot of the bed, or in children by hanging the limb vertically. The objection to this is that the weight may swing and cause jerking. For extremities in children a woolen shawl fastened under the arm and drawn towards the head is used. If an arm, the counter pull is made with an axillary bandage. Objectionable also is the extension made against the sole of the healthy foot. The patient pulls himself up with a jerk and disturbs the fracture. Any uncomfortable position gives the best possible cause to question the success of the extension treatment.

COLLES' FRACTURE.

The muscles directly attached to the fragments in Colles' fracture are:

To the anterior surface of radius—the pronator quadratus.

To the tip of the styloid process of the ulna—the supinator longus.

An examination of the majority of Colles' fracture plates will show a silver fork deformity, i. e., adduction of the lower fragment of the radius and a rotation of the lower end of this fragment dorsally. It is not so much an abduction as a shifting of the line of the limb toward the thumb side, viz.: the bayonet deformity. The cause of these deformities must be the traction of the muscles passing over the fracture, it allowing the muscles of the radial side to contract while those of the ulnar side cannot do so. Comparing the musculature of the forearm divided in the median line some kind of an equilibrium might be maintained by the two carpi flexors and the three carpi extensors on their four corners, but upon fracture the preponderance is thrown to the radial side for the following reasons: (1) The thumb has the strongest muscles, besides making three to this side, while the ulnar side has only two digits. (2) The greater mass of the muscles of the forearm on being the radial side. (3) The supinator longus having direct attachment to the fragment.

The reason for the dorsal elevation of the carpus is that the force causing fracture was applied to the thenar and hypothenar eminences, and the extensor muscles contracted holding the carpus elevated dorsally.

The indication, then, is for adduction and flexion, or the resultant, the "pistol" position. With the hand as the lever, the point of the ulna, as the fulcrum and the musculature to the radial side as the weight, the following muscles must be relaxed: The radial group, the supinator longus, the extensor carpi radialis longior and brevior; the deep oblique group of extensors, the abductor longus pollicis and the extensor brevis pollicis, as well as the deep straight group; the extensor longus pollicis and the extensor indicis; in fact all those extensors and flexors to the radial side.

For the flexion, with the hand as the lever, the coapted fragments as the fulcrum and the extensors as the weight, the following muscles must be relaxed: all the extensors of the digits, the ex-

tensor carpi ulnaris, and the adductor longus pollicis, which form the musculature of the middle of the dorsum of the forearm.

Placing and fixing the hand in this position will soon exhaust these muscles and either plaster of Paris or padded splints, built up, this position may be maintained.

FRACTURE OF THE SHAFT OF THE FEMUR.

In the fracture of the thigh the groups of muscles that would act to produce dislocation of the fragments are:

(1) The anterior group—the quadriceps femoris, consisting of its four elements, tending chiefly to produce posterior bowing.

(2) The internal or adductor group—the pectineus, adductor brevis, tending to deflect fragments in the upper third; the adductor longus in the middle or lower third and the adductor magnus and gracilis in the lower third.

(3) The posterior group, the flexors. To the outer-side the biceps forcing the fragments upwards and inwards, while the semi-membranosus and semi-tendinosus forces them upwards and outwards. If the limb is in adduction, place it in slight abduction to exhaust the adductors.

*Zuppinger's Splint for the Fracture of the Femur.**—The counter extension is carried by a splint back of the thigh, the tuber ischii resting against it as in sitting on an edge. Imagine the pelvis a fixed point. By bandaging the leg and the knee joint, the pull is carried to the lower fragment of the femur. If all the muscles of the thigh are put on tension the lower fragment will follow our traction without any difficulty. There are some powerful muscles here and they offer considerable opposition to stretching.

Steinman placed a nail through the femur fragment and later modified it by placing it through the head of the tibia. This gives an ideal point of attachment but has the objection of possible infection of the hematoma, or injury to the joint structure, or changes due to the disturbances of joint pressure.

It is necessary to take into consideration the adductors pulling the lower fragment in. This is corrected by placing the line of extension in the abducted position. If the adductors are not acting to produce this dislocation it is foolish to call them into play by abduction.

Description of the Splint.—See Fig. 2. This

*H. Zuppinger: Knochenbrüchen.

shows a square with jointed corners. If you place this vertically, it will fall over towards the right, point K will move away from point J. If you connect point K with point J with an elastic element (spring or rubber tube) the top of the square will also drop on account of the weighting of the bars, BK, KF, and FA, but only so far until increasing elastic power of the bar, JK has its equilibrium. This is the main thought of Zuppinger's splint.

Now at point J the tuber ischii comes against the splint and on the corner K, the knee lies, and at F the foot is fastened. The elastic element JK are the muscles of the upper thigh. Their tension prevents the falling over to the front of the apparatus and that power whereby the apparatus together with the leg strives to fall forward, expands the upper thigh musculature and thereby lifts the longitudinal dislocation.

This power can be regulated; the nearer you put A to B the greater it is. It is obvious that the hip joint as well as the knee joint are in semi-flexion.

LEG EXTENSION.

Here there are only two movable joints—H and F, while K is a button, which, together with the slit R, makes it movable. This system if put in a vertical position will immediately drop forward toward the right. But thereby the point F passes away from K until the H moves in the slit R until it strikes the button, but we do not let it come that far. We stretch an elastic element from K to F. Now if the splint goes forwards towards the right and the distance K and F increases, the extension of the elastic elements K and F rises and the system comes to rest when the tension of the elements of that power keeps its equilibrium which tries to enlarge the distance KF.

On the space FK the leg lies. At F the foot is fixed. The elastic elements are the muscles of the leg. Their tension holds back the forward falling of the apparatus and the power whereby the apparatus together with the leg strives to fall forward lifts the longitudinal dislocation. Here also the power can be regulated. It is larger the nearer A is moved toward the foot of K. Here, also, you see that the knee is semi-flexed. Now in connection with this, if you place the foot-board in a somewhat slanting position the ankle will go into semi-flexion also.

What is particularly to be mentioned in Zup-

pinger's splint is as follows: The patient lies in a more comfortable physiological position, which he will be able to keep for some time. Also, you can start movements of the knee joint by light massage, which will not affect the draft of the weights. Should the foot fall too deep, or if the end H will tighten itself by button K, you simply pull the string between the foot and the foot-board tighter and you get the original position again. The pull remains constant. That is why they call this an automatic extension apparatus.

It has been proven that semi-flexion takes from one-third to one-fifth less weight. Ten pounds is enough if the knee and hip are in semi-flexion.

NITROUS OXIDE AND OXYGEN ANALGESIA FOR OBSTETRICS FROM THE ANESTHETISTS VIEWPOINT.*

E. O. LUTHER, D.D. S.

CHICAGO.

The necessity for relief from the intense prolonged pain and nervous strain incident to labor has long been recognized by the medical profession. Experiments for relief have been almost unlimited, the latest and apparently most popular of which is scopolamin and morphin. This is not a new combination; most of you have used it and each has formed his own opinion of the drug. For best results it must be limited to hospital work and requires great care in the details of administration.

Nitrous oxide has the advantage of being applicable to all cases, places and conditions. It is as well used in the home as the hospital, is not dangerous, and has no bad after effects.

Nitrous oxide and oxygen with or without an ether sequence is not a new anesthetic, but the method of giving it and the apparatus used to administer it have done much to improve and make it the present ideal anesthetic.

To begin with I wish to state that I consider the advantageous results to be gained by the use of nitrous oxide and oxygen in obstetrics only limited by the lack of perfect technique on the part of the administrator.

Out of 54 cases in which this anesthetic was given, either by myself or Mrs. Luther, I wish

*Read before the Englewood Branch, Chicago Medical Society, May 4, 1915.

to give the history of seven, which will include normal and abnormal cases from which to draw a definite conclusion.

The first case I wish to give Mrs. Luther the credit for administering. It was one of the first cases where nitrous oxide and oxygen analgesia was given in the city of Chicago for obstetrics. It was cited by Dr. Frank W. Lynch in the March 6 number of the *JOURNAL* as being the first case he saw using this method. This case is very interesting because of its historical importance as well as the abnormal conditions involved.

It was given to Mrs. Lee Doty, daughter of former State Senator A. C. Clark, who invented the apparatus which, with its attachment for vaporized ether sequence, was used in this case.

History of case as given by Mrs. Luther:

Case 1. Patient in labor for some time before I commenced analgesia, then in second stage with two fingers dilatation and complete effacement. I gave deep analgesia, 90% N_2O , 10% O. Contractions continued with the same regularity but the patient did not complain of the pain, except at times she asked for more gas. Time of analgesia, $1\frac{1}{2}$ hours. 90% N_2O , 10% O plus 10% ether sequence given, patient completely anesthetized. High forceps used with no results. I then let patient regain consciousness, only keeping her in the analgesic stage, 90% N_2O , 10% O for nearly an hour. Then we started complete anesthetic for pubiotomy, giving 90% N_2O , 10% O and ether sequence gradually to 50%. After the incision (about ten minutes in all) patient received about 20% ether sequence until birth. Ether discontinued and patient returned to analgesic stage before stitches were completed. This stage was continued till after the placenta was delivered.

Because of the great length of labor period, patient required very little oxygen but needed more nitrous oxide to deaden the pain. Time of analgesia, five hours anesthetic complete, 2 hours and 40 minutes. Left patient an hour after birth eating breakfast.

Case 2. Patient aged 27 years. Date, Sept. 25, 1913.

Patient with exophthalmic goitre. Pulse during pregnancy average about 120. In the seventh month the patient had a severe attack of appendicitis.

Started analgesia at the beginning of the second stage. Gave 60% N_2O and 40% O. This mixture of gases was not changed. Pains continued with hard contractions during entire length of analgesia. Patient in this stage for six hours. Complete anesthetic administered and high forceps used. Time of complete anesthetic, 45 minutes.

At birth the child was somewhat cyanotic so before cutting the cord I asked permission to give the mother pure oxygen, thereby giving the baby a brighter circulation. The cord was cut and tied and

the placenta normally expressed. The patient awakened on the table and after being dressed was removed to her bed and allowed to have a glass of milk and a graham cracker, which was repeated in thirty minutes.

Case 3. Age of patient, 27 years. Normal.

I was called in the second stage of labor. Patient had been in labor for 26 hours. I gave full N_2O , until the patient was in deep analgesia, then gradually gave oxygen to 30%, this being decreased between the pains. The analgesia lasted for two hours. I gave a complete anesthetic for birth. Birth normal. Membranes ruptured at delivery. Stitches were inserted after birth in analgesic stage.

Case 4. Aged 42 years (12 years since last child birth).

Gave deep analgesia for labor, 90% N_2O and 10% O. For birth complete anesthesia was used with ether sequence, 95% N_2O , 5% O and 50% ether sequence, with all valves closed, using rebreathing much of the time. Forceps were used. Baby a little blue at birth, gave pure oxygen through mother to babe and in less than five minutes the baby's color was perfect and the cord tied. I then continued anesthesia, giving 90% N_2O , 10% O and 30% ether sequence until the placenta was expressed. Then discontinued ether sequence and increased oxygen gradually from 50% until about ten inhalations of pure oxygen were given. Length of complete anesthesia, 45 minutes total time given, 3 hours and 15 minutes.

Case 5. Aged 23 years; normal primipara.

Started analgesia in second stage. Membranes ruptured. Contractions were very regular, one minute apart and firm. Started with 95% N_2O and 5% O, increasing to 10 and 15% O between pains. Normal birth in 30 minutes. Patient said she felt no pain after the analgesia was commenced, but it should have been commenced somewhat sooner.

Case 6. Aged 26 years. History: First baby born dead after 92 hours labor. Second baby born after 36 hours labor. High forceps. Third baby—Mother very nervous, probably due to previous experience. I started analgesia early, about one finger dilatation, 90% N_2O and 10% O. This mixture was continued throughout. Normal birth in 45 minutes. Analgesia was continued till placenta was expressed and six cervical stitches taken.

Case 7. Aged 28 years. History: Patient had a miscarriage due to scarlet fever. In labor 48 hours. Second pregnancy: Labor 26 hours.

Third pregnancy: Condition—Patient very ill all during pregnancy. Ulcers of the stomach were diagnosed. In the fourth month of pregnancy she developed asthma, therefore we used the face or surgical inhaler. Commenced analgesia early, less than two fingers dilatation, 90% N_2O and 10% O. During analgesia I occasionally gave 50% O for one or two inhalations then back to the former mixture. Normal birth, 1 hour 45 minutes. No stitches.

In conclusion I will say I have not had a single case of nausea or complications of any

kind, either during or after the analgesia. The severe pain of labor is entirely done away with and a normal birth seems to take place in very much less time than usual.

All of our analgesia babies are alive and very active. To quote the mothers: "It is a very pleasant way to have babies. I know this through the quoting of mothers, including my own wife, to whom I gave the analgesia.

434 East Sixty-first street.

THE ABBOTT ALKALOIDAL COMPANY CHANGES ITS NAME.

The Abbott Alkaloidal Company has issued the following important and significant statement:

Owing to the rapid expansion and broad generalization of its business as manufacturing and importing chemists, the Abbott Alkaloidal Company has deemed it expedient to change its incorporate name to The Abbott Laboratories, and has done so. No change in personnel or policies. Our business is to serve the professions, through the general channels of trade, or direct (at the most convenient point) as best serves their convenience. Price list on request.

For a number of years this company has been broadening out and enlarging the scope of its activities. As most readers of this journal will remember, some four or five years ago it entered the biologic field and now puts out a full line of serums, antitoxins, vaccines, and similar products, both for human and veterinary practice. Also, it is engaged in the manufacture of pure chemicals and is constantly adding to its already large line of pharmaceutical products, many of which are not distinctively alkaloidal.

It is only fitting and proper, therefore, that a name should be adopted, which is broad enough to cover all the activities of this progressive, up-to-date American enterprise.

THYROIDS.

There are a few specific medicincs. Thyroids is one of them. To get Thyroid effects, however, reliable Thyroids should be employed. The physician should insure his patient and himself by demanding Armour's when prescribing Thyroids. Armour's Thyroid products are made from selected fresh material. The glands are carefully dried at a low temperature. The powder is analyzed and made to run uniformly 0.2 per cent of iodine in thyroid combination. Physicians interested in the standardization of thyroids should write to Armour and Company for reprint of Articles by Seidell of the Hygienic Laboratory and Fenger of the Armour Laboratory, who worked in conjunction. Armour and Company supply Thyroids in powder, 2-grain, 1-grain and ¼-grain tablets.

EARLY USE OF SAFETY GOGGLES.

The earliest record of systematic eye protection, according to G. W. Keller of T. A. Willson & Co., Inc., Reading, Pa., is that of the Crane Company, Chicago, which in 1897 began to provide eye protectors for its men. In 1898 the company put this work on a systematic basis, giving the glasses to the men free of charge, and requiring operators, as far as possible at that time, to wear glasses constantly when they were exposed to flying bits of metal, emery, or to glare and hot metal. Dr. A. M. Harvey, who is still chief surgeon of the company, was the originator of the plan. The Crane Company posted signs conspicuously at various points in the shop, drawing the attention of the men to the necessity of using glasses and the fact that the glasses were provided by the company without cost.—*The Iron Age*, April 22, 1915.

THE GLORIOUS PANOPLY OF WAR—PRETTY SOON



—Courtesy of Mr. Bradley and the Chicago Daily News.

Can This Be Our Old Friend—Anoci Association?

ILLINOIS MEDICAL JOURNAL

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JUNE, 1915

Editorials

THE ANNUAL MEETING.

One of the pleasant memories for some eight hundred members of the Illinois Medical Society will be that of the annual meeting in Springfield, May 18.

It was a gala week that should be marked by red letters in the calendar of the society, and those attending will long remember the time spent in our capital city. The program was excellent and was ably presented by all the sections.

There were many features of this convention which must not go by unnoticed—one of which was the efficiency of the public policy committee. On Sunday evening preceding the annual meeting many of the pulpits of Springfield were filled by members of the society, talking on various public health topics. This was followed during the week by talks on public safety, "Safety First Day." Several talks were given to the school children. These sermons or lectures were all interesting and the appreciation of Springfield was shown by very large audiences, which greeted the speakers in every instance. The committee is to be commended for its splendid work, and it is hoped the work this year will prove as efficient.

The public health and hygiene section, while not a new section, has grown with such rapid strides that under existing conditions and popularity of the subject, it will soon rival either of the other sections.

Preventive medicine is coming into its heritage, and now demands the study which has so long been denied it by both college and society.

Three years ago it seemed impossible that a new section could be added to the programs of our state society, and in so short a time take its place and compare well with the older sections. The society's thanks are due to the men who have undertaken to educate us in this most important and popular branch of medicine.

That function of our society which apparently is mostly demanded, made its first real advance this year. The society must be congratulated upon the work of its medico-legal committee. Both Dr. C. B. King, chairman of the committee, and Mr. Folonic, general counsel, have given unstinted time and labor to this work during the last year, and have successfully defended, during that time, nearly one hundred malpractice cases. This committee, together with a special committee, has made a general survey of medical defense as carried on in other states, and its report is flattering to the service given by the Illinois Society. The by-laws were amended as per the request of the committee, and the larger committee will continue its work of survey for another year. The society wants the best and will have it.

To the delight of every one present, the house of delegates adopted a new constitution and by-laws, as reported and recommended by its special committee on constitution and by-laws. The society has been five years in freeing itself from an ancient, archaic constitution and by-laws, which never were satisfactory and had finally become unendurable. Only the members of the committee and the council know the trials undergone by the members of that committee, and again the society is to be congratulated upon the enactment of new laws.

It was clearly demonstrated in the work accomplished by this committee that when a committee really wished to do constructive work, having the interest of the society at heart, they could accomplish results, although there were divers opinions on many topics.

A phenomenal feature of this meeting—and

not the least important by any means—was the several alumni dinners. Some of the alumni associations had the largest attendance here on record, and goodfellowship reigned supreme. We believe much of the success of this annual session was owing to the good will expressed at these dinners.

The most pleasant feature to record was the genial, hearty reception of the members by both the profession and laity of Springfield. Our committee on arrangements and the members of Springfield simply gave us everything available and looked to every comfort of their guests. When it comes to entertainers, we "place Springfield against all comers."

A. M. A. MEETING.

Are you going to the annual meeting of the A. M. A. in San Francisco. Every member of the Illinois State Medical Society should attend this great medical convention.

There are a large number of other medical conventions to be held in San Francisco during the next few weeks, and those going to the A. M. A. meeting will have the opportunity of attending other meetings, which are sure to be interesting. Among the meetings to be held in the Golden Gate city are:

American Medical Association, June 21 to 26, inclusive, 1915.

Pacific Coast Oto-Ophthalmological Society, June 15, 16 and 17, 1915.

American Association, Milk Commissions, June 17, 1915.

Pan-American Medical Congress, June 17, 18 and 19, 1915.

American Climatological and Clinical Association, June 18 and 19, 1915.

American Association of Medical Examiners, June 21, 1915.

American Therapeutic Society, June 21 and 22, 1915.

American Proctologic Society, June 21 and 22, 1915.

Pacific Association of Railway Surgeons, June 24, 25 and 26, 1915.

American Academy of Medicine, June 25 to 28, inclusive, 1915.

But attending these medical conventions is not the only reason you should go—every medical

man owes himself at least an annual vacation. You are cheating yourself if you do not take at least a month for recreation, and you are probably cheating your patients if you do not spend some time away from your professional work. Any man can do better work after taking play days; and a doctor should be in a better physical condition and more ready to assume the duties of an exacting professional calling.

NEEDED REVISION OF HEALTH LAWS AND HEALTH ORGANIZATION IN ILLINOIS.

A full recognition of the need of improvement must precede every important reform. A definite conclusion as to the extent and nature of desirable improvements, is a long step toward bringing them about.

Within the past few weeks, there has been given out to the public press from the United States Public Health Service, the resume of a report on public health laws and public health conditions in Illinois, based upon investigations of Dr. S. D. Grubbs extending over several months. This report is not particularly complimentary to Illinois. It strongly recommends radical changes in the sanitary laws; important changes in the organization and methods of the State Board of Health and a decidedly altered attitude in public health matters on the part of the people.

The very important feature of the report, however, is that its recommendations are almost identical with those previously made by the present State Board of Health, indicating perfect agreement between the board and the federal public health department as to the constructive program, which must be carried out to place Illinois in the forefront of progressive states. In fact, at the time Dr. Grubbs' report was given to the public, most of the changes and improvements recommended were in one way or another before the General Assembly and the State Board of Health was energetically engaged in attempting to secure the passage of the laws making sanitary reorganization possible.

During last autumn, the board laid before the Efficiency and Economy Committee of the General Assembly a plan of co-ordination of all existing state agencies having directly or indirectly

to do with the public health, and reorganizing the State Board of Health in such a manner as to divorce the department of medical licensure from that of public health and to separate the various functions of the board into divisions and bureaus. The plan submitted by the board, co-ordinated the public health functions of such organizations as the State Water Survey, the State Food Commissioner and the Food Standard Commission under the control of the State Board of Health and also provided for the co-ordination of such examining and licensing bodies as those for nurses, pharmacists, dentists and barbers with the department of licensure of the board.

There were also provided a bureau of medical inspection, with divisions of contagious disease control, of tuberculosis, of child hygiene and school inspection, with laboratories for the diagnosis of communicable disease; a bureau of vital statistics, which, with a new birth and death law, would at once place Illinois among the registration states; a bureau of sanitary engineering, which the board has never had in the past, and a bureau of food and drug inspection.

In its annual message to the governor, submitted last December, the State Board of Health made a number of recommendations for legislation and for consideration which, if acted upon, and in the event of failure of passage of the bill submitted by the Efficiency and Economy Commission, would bring about many of needed changes which are now recommended by the federal report.

In addition to the co-ordination of state health agencies, the board recommended the division of the state into sanitary districts, each with its full time medical health officer; the establishment of a bureau of sanitary engineering with engineering and research laboratories; a state-wide campaign of education including a traveling public health exhibit; the creation of a department of tuberculosis; provision for the free distribution of smallpox vaccine; the passage of a birth and death law which will afford full and accurate vital statistics; the amendment of the medical practice act, giving the board control over medical licenses issued prior to 1899; a law giving the board control over water supplies and sewage disposal; provision for the establishment of branch diagnostic laboratories and provision

for state schools and conferences of local health officers.

Several of these provisions will be written into the laws before the present general assembly adjourns. It is confidently expected that district health officers will be in the field during the coming year and that the sweeping campaign of education, the need of which is recognized by both state and national authorities, will be assured.

The criticisms and recommendations in the federal report are, in the main, fair and sound. It is gratifying that state and nation agree even in detail as to the plan which should be adopted. It is even more gratifying to know that the realization of the plan had, in many important parts, become a matter of practical realization even before the federal report appeared.

ACTIONS FOR CIVIL MALPRACTICE.

ROBERT J. FOLONIE, L. L. B.,
CHICAGO.

Ninth Article.

One of the most frequent producers of malpractice claims, is a deformity consequent upon a fracture. Most frequent among fractures as a causative agent for such claims, is a Colles' fracture. The deformities so frequently resulting from this fracture, render the greatest care necessary in advising the patient of the possibility of a deformity and of having patient call at the office while under treatment and calling in another surgeon to examine it, if there appears a likelihood of a deformity resulting.

I have even had claims for malpractice to defend where the physician setting a Colles' fracture was immediately discharged after accomplishing a reduction and the patient thereafter attended by another. Claims are becoming more frequent than formerly if any bad result occurs and the x-ray has not been used,—that a failure to use the x-ray was the cause of the deformity, in that the physician did not properly inform himself and use ordinary agencies in making diagnosis. If the patient declines to have an x-ray plate made on account of expense the physician should insist upon such stand of the patient being communicated in his presence to some other person, for his own protection. The tendency is in such cases, when a bad result occurs and the patient has declined to incur the ex-

pense of an x-ray examination to color the facts, by asserting that the patient requested an x-ray examination, and that the physician stated that it was not necessary.

Many claims are also asserted in fracture cases when Lane plates are used and there is a failure of union and sepsis.

The division of opinion as to the propriety of using such plates under varying circumstances, makes it advisable:

1. To insert the plate only in a hospital with all its aseptic precautions.
2. If the practitioner has not used the plates, to call into consultation a surgeon who is familiar with their use to assist.

Cases of fracture, particularly those where a shortening may be anticipated, are to be looked upon as fruitful sources of subsequent claims and when the patient is in his own home and has not the services of a trained nurse to prevent removal of bandages, etc., it is the part of caution to have the case seen by some one outside of the family for their suggestion and advice and to safeguard claims of impropriety of treatment.

NEW OFFICIALS

At the meeting of the House of Delegates held at Springfield, May 20, the following officers of the Illinois State Medical Society were elected:

President—Charles W. Lillie, East St. Louis.

President-elect—W. L. Noble, Chicago.

First Vice-President—F. S. O'Hara, Springfield.

Second Vice-President—H. P. Beirne, Quincy.

Treasurer—A. J. Markley, Belvidere.

Secretary—W. H. Gilmore, Mt. Vernon.

Councilor for Third District—C. D. Pence, Chicago.

Councilor for Sixth District—C. D. Center, Quincy.

Councilor for Ninth District—F. C. Sibley, Carmi.

Committee on Public Policy—A. M. Harvey, Chicago; J. A. Poling, Freeport; H. N. Rafferty, Robinson.

Committee on Medical Legislation—L. C. Taylor, Springfield; H. F. Bennett, Litchfield; N. M. Eberhardt, Chicago.

Committee on Medical Education—A. M. Corwin, Chicago.

TUBERCULOSIS NOTES.

A diet in rich proteids is recommended as being best for tubercular patients.

A movable tubercular joint means an active tuberculosis; must be absolute immobilization if cure is expected.

The use of tuberculin does not mean the discardance of other therapeutic dietetic and hygienic treatment. It is only an aid, not a cure.

In a pregnant woman, with active pulmonary tuberculosis, terminate pregnancy and sterilize.

It is stated that albumin is present in sputum of every case where tubercle bacilli are found, and if no albumin is present, no bacilli will be found. Would be well to work out thoroughly, as several articles have lately appeared on this subject.

A so-called simple pleurisy, if followed up, in the vast majority of cases, will prove to be tubercular.

(Packard, Medical Record, Dec. 26, 1914.)

Points to be emphasized in the treatment of fever in tuberculosis: First and foremost, absolute rest in bed, preferably out of doors; artificial pneumothorax in selected cases; a trial with autogenous vaccines, especially when there is copious purulent expectoration; the cautious use, if at all, of tuberculin, and then only after other measures have failed; hydrotherapeutic measures suited to the condition and comfort of the patient; an ample diet, but not necessarily forced feeding; and the judicious use of anti-pleuritics.

In a case suitable for the performance of an artificial pneumothorax, the operation should not be delayed, as waiting may result in such changes that the operation cannot be performed and the patient lose his only chance of recovery.

If artificial pneumothorax will save the tuberculous patient, why not use it early and save a long time of suffering and possibly lose the patient?

SAN FRANCISCO MEETING—ALL ABOARD.

TOUR DE LUXE LEAVES CHICAGO THURSDAY, JUNE 17,
10 P. M.

Tour includes:

First-class railroad ticket to San Francisco, Los Angeles, San Diego and return.

Pullman standard sleeper to San Francisco, giving an entire section to two persons.

If two persons occupy one berth there is a reduction of \$10 on the two tours.

Transfer of member and checked baggage to and from hotel at San Francisco.

Seven consecutive days at Hotel Plaza in San Francisco (only two to double room), including seven breakfasts.

Seventy-five per cent of rooms with private bath, those making first reservations having first choice.

Seven admissions to Panama-Pacific International Exposition.

Admissions to twenty attractions within the exposition grounds.

Steamer trip (4 hours), San Francisco Bay, viewing the Golden Gate and exposition grounds.

Key trolley trip (7 hours) through Oakland, Alameda and Berkeley, visiting the University of California, famous Greek Theatre and Idora Park.

Trip to Mt. Tamalpais (8 hours), on the "Crookedest Railroad in the World."

"Trip to Chinatown" with guide escort.

Official Itinerary of the Chicago Medical Society Special Train:

Leave Chicago 10 p. m., June 17, via Rock Island Lines. Arrive Belleville 6:15 p. m., June 18, via Rock Island Lines. Arrive Colorado Springs 7:30 a. m., June 19, via Rock Island Lines.

Leave Colorado Springs 10:30 a. m., June 19, via Denver & Rio Grande. Arrive Salt Lake City 11:30 noon, June 20, via Denver & Rio Grande (Mt. time.)

Leave Salt Lake City 2:30 p. m., June 20, via Western Pacific (Pac. time). Arrive Oakland 5:50 p. m., June 21, via Western Pacific. Arrive San Francisco 6:30 p. m., June 21, via Western Pacific.

The cost, as outlined, is \$141.

Returning over any Central or Southern route you may choose. Returning via Northern route, \$17.50 extra.

The Plaza Hotel has about 75 per cent of its rooms with bath, and Gregory Tours have waived their original extra charge for rooms with private bath, therefore those who make their reservations first will be assigned to rooms having private bath.

When you make your last payment, please specify the route you wish to return by.

Make your reservations now. Last call.

Dr. R. R. Ferguson, Chairman Transportation,
Chicago Medical Society,
3923 N. Keeler Ave., Chicago, Ill.

Dear Doctor: Please reserve accommodations for.....persons on our Panama-Pacific International Exposition Tour. I enclose herewith check for \$....., being first payment on each reservation (second payment will be made in thirty days).

Make all checks payable to Gregory Tours or Dr. Ferguson.

Signed.....

Address.....

Date..... State.....

Public Health

SURGEON-GENERAL'S OFFICE CORRECTS PRESS ACCOUNTS OF GRUBBS' REPORT.

The following telegram from the Acting Surgeon General of the U. S. Public Health Service to the Secretary of the Illinois State Board of Health is of special interest at this time in view of misinterpretation of report of Dr. Grubbs on health administration in Illinois:

Washington, D. C., May 24, 1915.

Dr. C. St. Clair Drake,

Secretary, State Board of Health,
Springfield, Ill.

"Understand Grubbs' report construed by some papers to be condemnation of Illinois State Board of Health. On contrary this report is constructive in character and points out present executive in office only since May, 1914. Am informed by Grubbs, his recommendations except in minor particulars substantially those of State Board of Health to Economy and Efficiency Committee. Am pleased at unanimity of these opinions in respect to public health needs of state."

(Signed) GLENNAN,
Acting Surgeon General.

STATUS OF LEGISLATION OF INTEREST TO PHYSICIANS ON MAY 31, 1915.

PUBLIC HEALTH.

Legislation at Springfield, in which the medical profession of the state is interested, stands at this writing as follows:

The Optometry Bill, House Bill No. 9, now on third reading in the house and made a special order of reading for Tuesday, June, 1.

The Birth and Death Registration Bill, Senate Bill No. 213, passed the senate and now on second reading in the house. Representative Edward J. Smejkal looking after interests of this bill in the house. Has been made an administration measure and probably will pass.

The Thon Bill, House Bill No. 582, providing for prevention of blindness from ophthalmia neonatorum, passed the house May 27, will probably be on second reading in house June 2. Senator Dailey of Peoria fathering this bill in senate. Is a good bill and should pass.

The Burres Bill, House Bill No. 477, provid-

ing for restoration of jurisdiction over medical certificates of licentiates of State Board of Health of period prior to July 1, 1899, passed house by vote of 102 for, none against, and now on second reading in senate. Senator Cornwell is looking after interests of this bill. Should become law.

The Anti-Narcotic Bill, Senate Bill No. 300, passed the senate and now in Judiciary Committee of the House. Must get out of committee by June 2 if it is to become law this session.

The State Board of Health Reorganization Bill, Senate Bill 240 and House Bill 592, still in committee. No chance this session.

House Bill 468, exempting from civil service physicians and lawyers employed in state, county, city or other political division service. Introduced by Dr. Lipshulch of Chicago. Still in Committee on Civil Service.

Anti-Vending Bill, Senate Bill No. 84, still in Committee on Judiciary and Judicial Practice of Senate. No chance this session. Fought by patent medicine vending interests.

Senate Bills No. 301 and 302, introduced by Senator Broderick of Chicago, prohibiting physicians from writing prescriptions in other than English and prohibiting pharmacists from filling prescriptions when written in other than English. Both bills still in committee.

House Bill, No. 668, introduced by Rep. Sonnemann, providing for first aid medical service to injured employes requiring hospitals, physicians and druggists to extend such aid to those injured while employed, compensation to be provided by employer if working under Workmen's Compensation Act, by county board if not operating under such act. This bill still in Committee on Judiciary.

House Bill No. 655, introduced by Rep. Hamlin, defines "feeble minded person" and provides for commitment to institutions, passed the house by practically unanimous vote May 28. Now in senate.

House Bill No. 709, compelling railroads to furnish first aid to injured. Still in Committee on Public Utilities.

JOLIET DISREGARDS HEALTH RULES AND IS PAYING THE PENALTY.

SCARLET FEVER NOW EPIDEMIC.

During the last two weeks the State Board of Health has been giving special attention to a

rather serious outbreak of scarlet fever at Joliet.

On invitation of Mayor Barber and Health Officer Higgins of Joliet, representatives of the state health department have been making investigations and holding frequent conferences with the city authorities and the medical society of that city.

Investigations have established the fact that the widespread prevalence of the disease is due to too early release of cases from quarantine, in most instances within three weeks. In this connection it is interesting to note that the recent epidemics of scarlet fever at Decatur and Mattoon were due to the same cause and that just as soon as the required period of quarantine, five weeks, was established, the epidemics very promptly subsided.

Rigid enforcement of the State Board of Health rules for the control of contagious diseases is urgently recommended to all communities. Such enforcement will prove vastly less costly and annoying than an epidemic.

REGISTER OF LICENSED EMBALMERS READY FOR DISTRIBUTION.

A new directory of the licensed embalmers of Illinois recently compiled by the State Board of Health is now ready for distribution. Copies can be obtained, without charge, by addressing request to the secretary at Springfield.

ANOTHER REASON WHY ILLINOIS SHOULD GO DRY.

VERBATIM COPY OF COMPLAINT RECEIVED BY
STATE BOARD OF HEALTH.

A———, Ill., May 24, 1915.

Dear Sir:—

"For we had a wedding in our neighborhood and while they tapted the beer one of the fellows dished out the old rinch watter what they had used all after noon to wash glasses and handed that out to the men to drink. the next day he told and laught about that to Mr. F— F— and B— H—. The one who done that was Mr. B— W—, A., Ill. I hope you don't let that go lik that for he is full of all kind tricks like that.

But please let me out of that and call on F— F— and B— H—, they know more about that as I do."

Yours truly,

Auto Sparks and Kicks

A CAUSE OF CARBON FORMATION.

A factor making for carbon deposit one that is generally overlooked by the motorist, is poor adjustment of the carburetor. A flooding carburetor and one having too rich a mixture (too much fuel in proportion to the air) will cause a voluminous deposit of the carbon in the form of lampblack. This is due to the fact that too small a quantity of oxygen is present, making it impossible to burn both the fuel mixture and oil vapors. As a result carbon is deposited from the partially burned fuel, and more rapidly from the highly heated unburned lubricant. When the exhaust shows a black smoke the fuel should be cut down by adjusting the carburetor to a point of leanness of mixture that will cause back firing, then increase the fuel supply until the popping ceases. Always adjust the carburetor when the motor is warm. The failure of the motor to start on other than an exceedingly rich mixture does not warrant the waste of fuel, and the cause of the trouble should be located and corrected.

INFLATING TIRES.

"Inflate slowly at first," says L. Greenwald, manager service department the Firestone Tire and Rubber company. "There are a great many views as to the proper pressure, but it is rutable to inflate the front tires to a pressure equivalent to seventeen or eighteen times their cross-section and the rear tires to a pressure equivalent to twenty times the cross-section. For example, 34x4 tires on front wheels should have from sixty-eight to seventy-two pounds pressure, while on the rear wheels the pressure should be about eighty pounds. The tire should round out pretty well and not flatten under the weight of car and passengers."

Reinflate the tire occasionally, as the inner tubes are permeable when the rubber is heated to 80 degrees or more and 15 or 20 per cent of the pressure then is lost."

OIL SHOULD BE DRAINED OFF.

Because the lubricant loses its efficiency the old oil should be drained from the crankcase or sump of the motor, and the system rinsed out thoroughly with kerosene before renewing the

supply. It is poor economy to add a pint or so to bring the old supply up to the proper level for the reasons above stated, and the motorist who adheres to such a practice invites unnecessary repair bills.

Many troubles developing from improper lubrication are due to the owner's not understanding the principles of the lubricating system of his motor. Certain systems do not require cleaning as frequently as others, such as the all-loss.

GETTING FLAME WITHOUT A MATCH.

In the repair shop and on the road one often is required to have a flame and finds no matches available. Should one happen to be out in the country and in the dark, usefulness of the following means of obtaining an excellent flame will be appreciated. It consists in winding a small bunch of waste or a piece of cloth around a stick or the end of a tool, dipping it into the gasoline tank and then lighting the torch thus manufactured by holding it in the path of the sparks that jump between the end of a disconnected cable and the sparkplug terminal.

Sometimes a spark may be made to shoot from the pat-cocks of the cylinder by racing the motor.—*Motor Age*.

CASTOR OIL AS A LUBRICANT.

Sometimes, if you happen to run out of cylinder oil and cannot secure any readily—although this is not at all likely nowadays, with so many garages all over the country—go to a drug store and buy castor oil and use it. The foreign racing cars that took part in the 500-mile races at Indianapolis Memorial day used this article almost exclusively. The odor from the exhaust when castor oil is used is not pleasant, but the lubricating qualifications are high, although the cost is naturally prohibitive for ordinary use.

RATTLING IN THE BRAKE-BANDS.

Rattling is often due to the fact that the breaks need relining. When worn down they generally are noisy. Shim up or bush the suspension points so that there will be no lost motion. It is advisable to use small coil springs to keep the suspended parts from hitting the brake drums.

Society Proceedings

ADAMS COUNTY.

The Adams County Medical Society met in regular monthly session May 10 at the Hotel Newcomb, Quincy. Meeting called to order by President C. R. Bates. The attendance was a record-breaker, and we wish that it would continue.

The morning was devoted to business matters, among them being a communication from the Jefferson County Medical Society, requesting our society to act on a proposed definition of the Illinois Medical Practice Act (Section 7), and to instruct our delegate to the state meeting to support the same. By a motion which prevailed, the movement was endorsed and the delegate instructed to act as requested. It was further moved that when this proposed change becomes a bill, it be referred to our legislative committee with power to act immediately. Seconded, carried.

On motion of Dr. Christie, Councillor Center, whose term expires this year, was given a vote of thanks for services rendered, and his name endorsed for re-election. Seconded, carried. At this point, Councillor Center spoke about the revision of the constitution and by-laws of the state society and gave a few legitimate reasons why they should be revised. He ended his talk by making a motion that this society instruct its delegate to do his best at the next meeting of the house of delegates to secure the desired revision. Seconded and carried unanimously.

Then we adjourned for lunch, which was served in the hotel breakfast room.

The afternoon session was given over to Dr. Charles Davison of Chicago, who was the guest of the society on this occasion. The doctor brought his suitcase along, which contained instead of the usual paraphernalia, an immense number of Roetgenograms, illustrative of the cases which the Doctor told us about. The subject of this most interesting paper and talk was, "Autoplastic Work in Recent Fractures." Judging from the results obtained, this work is sure to become a very important adjunct to modern surgery.

Dr. Kirk Shawgo, one of our members, permitted us to use his electric shadow box, and was given a rising vote of thanks for his kindness.

Those who were fortunate enough to be present felt well repaid for coming, and showed their appreciation to Dr. Davison in various ways; the final one, by a rising vote of thanks. Meeting adjourned about 4 p. m.

ELIZABETH B. BALL, Secretary.

ALEXANDER COUNTY

The regular monthly meeting of the Alexander County Medical Society was held at the Commercial Club Rooms, Cairo, April 15, 1915. The president, Dr. McNemer, presided. The other members

present being Drs. Dickerson, Cary, Davis, Grinstead, Fields, Gassoway, Dodds, Dunn, A. A. Bondurant and Flint Bondurant. Minutes of the last meeting were read and approved.

Dr. Dunn reported an interesting case of glaucoma complicated by chronic morphinism. Three years ago patient first came under his care for acute glaucoma of right eye. Efforts to relieve with eserine failed and an iridectomy was done. Recently, while under the treatment of another physician for the morphin habit, patient developed acute glaucoma in left eye. Dr. Dunn thought the worry coincident with the withdrawal of morphin caused the acute glaucoma to develop in the left eye, which was evidently predisposed. Dr. Bondurant thought that the cessation of the use of morphin permitted the pupil, which had heretofore been kept contracted from the continued use of morphin, to relax, thereby obstructing the canal of Schlemm.

Drs. Dodds and Davis reported a case of eclampsia, which they had successfully treated by the "Strogonall method."

Dr. A. A. Bondurant reported a case of post-operative hiccough treated by opiates and chloral.

Dr. S. B. Cary gave an excellent discourse on "The Pulse," and elaborated on the arterial system from a physiological-pathological standpoint, and the discussion was led by Dr. McNemer and was participated in by the various members.

The question of the optometry bill was discussed and a resolution adopted approving same, copies of which were ordered sent to our representatives.

Dr. W. F. Grinstead was elected special delegate to the Illinois State Medical Society meeting in May. A motion was made and unanimously carried that Dr. J. A. Warner of the department of experimental medicine of Parke, Davis & Co. be invited to deliver a lecture to the society at its next meeting. Meeting adjourned.

FLINT BONDURANT, M. D.

Secretary.

COOK COUNTY.

CHICAGO MEDICAL SOCIETY. PROGRAM.

Regular Meeting, April 28, 1915.

1. "A New Method of Securing Bony Ankylosis of the Vertebrae in Potts' Disease by Means of a Bone Transplant" (lantern slides), A. E. Halstead. Discussion—Chas. M. Jacobs, John Lincoln Porter.

2. "Tuberculous Infection as a Disease Entity," George Thomas Palmer, Springfield, Ill. Discussion—Arthur F. Beifeld.

3. "What of the Child with Enlarged Glands?" O. W. McMichael. Discussion—F. S. Churchill, John Ritter.

Child Welfare Meeting, May 5, 1915.

1. "The Mental Health of the Child," Wm. O. Krohn. Abstract: Senses present before birth;

mental faculties at birth; order in which mental faculties unfold; period of growth; three crises of child life; mental abnormalities arising from insufficient regard for the principles of mental growth; relation between mental and physical growth; how to make school, as well as play, and all other occupations, redound to the development of mental, as well as physical, wholesomeness and sanity.

2. "The Chemistry of the Boy," Mr. John D. Shoop, first assistant superintendent of schools.

3. "The Beginnings of Delinquency and Criminality," Wm. Healy, director of the Psychopathic Institute of the Juvenile Court. Discussion—Miss Edna Foley, superintendent Visiting Nurses' Association; Mr. John L. Whitman, superintendent House of Correction; Annabel Cleveland Test, chairman, Child Welfare Committee, Woman's City Club; Frank S. Churchill, chairman Infant Welfare Society; J. W. VanDerslice.

Regular Meeting, May 12, 1915.

1. "Practical Points Determining Permanency of Cure in Operations for Hernia," A. J. Ochsner.

2. "Hernia in Children," Coleman Buford.

3. "Relation of Hernia to Undescended Testis," Daniel N. Eisendrath. Discussion—E. Wyllys Andrews, C. W. Hopkins, Wm. E. Schroeder.

Regular Meeting, May 26, 1915.

1. "Hydrophobia—The Problems," C. E. Hemenway.

2. "Hydrophobia—What Is Being Done by the State Board of Health," John A. Robison, president Illinois State Board.

3. "Rabies in Animals in Cook County," D. M. Campbell.

4. "Treatment of Hydrophobia," Antonio Lagorio. Discussion—R. R. Ferguson, Joseph Hughes, Chicago Veterinary College; J. O. Cobb, surgeon U. S., P. H. S.; Benjamin Gruskin, Robert Zeit.

CHICAGO OPHTHALMOLOGICAL SOCIETY.

MEETING OF MARCH 15, 1915.

(Continued from Page 407)

CONGENITAL ANOMALIES OF THE LEFT EYE.

Dr. Herbert L. Walker reported a case of congenital anomaly of the left eye and exhibited the patient. The right eye was normal; distant vision 20/20 minus 1; left eye, 22/100; field contracted; absolute scotoma; nerve head colobomatous; arteries and veins anomalous; retina poorly supplied with vessels. Retina has misplaced pigment spots, but it is a question whether these are misplaced pigment spots or a diseased condition. The macula has a sac-like protuberance of about two or three times the size of the nerve head, and from the optic nerve run fine fibers over toward this sac-like protuberance. The sac is about 4 mm. high at the lower portion and at the upper it is about 2 diopters high. He believes there is fluid

in the sac. The cyst is white. There are no vessels traversing it. It is almost transparent at the upper portion with a greenish hue. The whole thing looks almost snow-flake like.

As to the literature, Fuchs speaks of a cyst-like protuberance at the macula and says it is congenital.

DISCUSSION.

Dr. Harry S. Gradle said there were one or two things that would rule out the congenital phase of this case. There were inflammatory symptoms and signs in the choroid and retina around the abnormality. At the lower edge of it the retina was fluffy. The retina was somewhat thickened, in which vessels appear, and there was a fluffy condition around the upper edge. There were several choroidal spots. At one point one of the vessels ran into it and disappeared. The whole thing ran on top of the nerve layer. If the condition were congenital, he did not think there would be these inflammatory signs, and there would be vessels showing on the surface of it. He thought it was some sort of inflammatory condition and suggested puncturing the cyst with a fine needle.

Dr. Walker, in reply, said, first, there was coloboma of the nerve head. Second, there was an anomalous distribution of the retinal arteries, which was not due to an inflammatory condition. There were pigment spots, and the cyst-like condition at the macula was not due to an inflammatory condition. The cyst looked more like the cyst of a cysticercus, but the cyst of a cysticercus was semi-transparent. This was not the cyst of a cysticercus. The retina was not normal. These pigment spots might be pathologic. To puncture the cyst would mean very heroic treatment, and he would not undertake to puncture a cyst so near the optic nerve. The patient consulted him on account of divergent strabismus which dated back to childhood. The man had 45 degrees of divergent strabismus.

LESION IN UPPER PORTION OF CUNEUS.

Dr. George F. Suker exhibited a set of visual charts of a rather unique case. He also showed x-rays pictures of the case which were taken on the 18th of February. Patient was chief of police of one of the cities in the state who, while performing his duty, was held up and shot in the right occipital region, the bullet passing backward and upward and a little downward toward the right side. He was picked up unconscious, taken to the hospital, but nothing was done for him. He remained in a hebetic condition for several weeks until he recovered sufficiently to get about. Patient was sent to Dr. Suker for consultation. He showed three stereoscopic views of the field of vision. There was a distinct shadow round about the impact of the bullet, part of it pressing upon the inner table of the cranium and the other part outside of the skull. The fields disclosed homonymous symmetrical quadrangular hemianopsia to a degree. There was scotoma in the left eye, but not very definite. This placed the lesion, as far as he could determine, in the cuneus and conformed to the exact lineation of the retinal fibers in their occipital endings, as outlined by Schaefer and Sanger Brown years ago. The lesion, he thought, must be in the upper portion of the cuneus because the quadrangular fields were limited. The x-ray findings and shadows of the brain corre-

sponded to about the location of the cuneus, and the man was recovering fairly well, although nothing had been done, because the bullet was not within the brain, and the edema present was most likely due to a hemorrhage by countercoup, and he thought it would be useless to do any trephining or compression operation. This was the consensus of opinion of two other men who saw the case with him.

A very peculiar symptom was that when the patient looked down and turned his head toward the right and struck the blind field, he immediately had vertigo; he had the sensation of falling over a precipice, but as soon as he swung the eyes around this symptom disappeared. He had 20/20 vision, was presbyopic, with 4 or 5 D. There was no hyperemia of the disc or engorgement indicating the line of pressure along the optic nerve either by choked disc or neuro-retinitis.

According to the literature, there were only 15 or 20 cases of such quadrangular fields on record.

DISCUSSION.

Dr. Thomas Faith recalled two cases of homonymous quadrangular hemianopsia, one in a patient with pneumonia who subsequently died. The other patient, a pneumonic case, lived for some time, was able to get about again and was fairly comfortable. In her case the quadrangular hemianopsia persisted throughout life. She died suddenly without any explanation for her death. These cases were seen one winter, coming close together, within three or four weeks. He thought there might have been a local metastatic focus responsible for the trouble. Dizziness was very marked, so much so that the patient found it difficult to get around unless she had some particular guide and followed it in going from one room to another.

Dr. Suker said that this was the first instance where he could possibly trace the trauma to the cuneus lobe, or which conclusively proved to his mind the characteristic endings of the retinal nerve fibers as far as the interpretation of objects was concerned. It was largely due to Sanger Brown that the checkerboard division of the retina had been accepted.

NEW SPECULUM.

Dr. Charles C. Darling exhibited a modified speculum designed by Crookman, which has a separate blade above and below that fits into the main blade and will hold a piece of rubber tissue or oiled silk which will cover the margin of the lid, the lashes, and the skin of the lid, giving the operator a sterile field to work in.

XERODERMA PIGMENTOSUM.

Dr. Lee Wallace Dean, Iowa City, Iowa, reported the ocular findings in two cases of this disease, and stated that it is a rare disease of the skin which makes its appearance frequently in several children in a family, while the history of the parents shows no disease which can be associated in any way with the trouble in the children. The patients are born with normal skin and develop in the first, or at the latest, during the second year, circumscribed red spots on the skin. These spots appear only on the parts of the body that are exposed to the sun. They disappear as a rule in a short time with scaling, but make their appearance again soon afterwards with the action of sunlight.

The eyes suffer in xeroderma from involvement of the lids and conjunctiva, and more rarely the cornea. The first signs of the disease usually make their appearance in the face and especially on the lids. With the scarring of the skin and atrophy ectropion is produced. Usually very early in the course of the disease the eyelashes fall out. From the freckle-like spots warty elevations appear, which finally are converted into true carcinoma. These growths may affect all four of the lids. The conjunctiva is often affected by the xeroderma. In addition to the conjunctivitis we find numerous red spots with pigment flakes and dilated blood vessels in the conjunctiva. In the beginning these changes are often very slight, but with careful investigation they are usually discovered. Marked shrinkage of the conjunctiva is often noticed. Opacity of the cornea is frequently present. The tumors sometimes involve the conjunctiva. A true carcinoma of the corneo-scleral boundary has been reported in xeroderma.

No definite therapy for the trouble is known. The carcinomatous nodules should be removed by surgical methods.

The first case was V. F., white, poorly nourished, female, 8 years of age.

Eyes: O D vision equals ability to count fingers at 15 feet. O S vision equals counting fingers at six feet. There is an ectropion of the upper and lower lids of each eye, the ectropion being due in each case to the formation of a warty-like mass on the eyelid. These masses have the appearance of epithelioma of the lids. On the lower lid of the right eye the subcutaneous tissue as well as the skin is involved. On the other three lids only the skin seems to be involved in the pathological process. Patient suffers somewhat from photophobia.

Right eye: Tarsal conjunctiva of upper and lower lids very much thickened and reddened; numerous ectatic vessels; bulbar conjunctiva markedly injected. Surface of the cornea smooth and glistening except near the nasal margin where there are two whitish elevations of the cornea which look like piled up epithelial cells. Each elevation is about half the size of a pin head. The whole of the cornea is diffusely opaque, the pacities being most marked in the upper two-thirds. Both conjunctival and ciliary vessels extend into the cornea, the vascularization being most marked above. The pupil dilates well with homatropin. Iris tissue apparently normal. The interior of the eye cannot be distinctly seen. The two little spots on the anterior surface of the cornea give the impression of being papillomatous.

The findings in the left eye are similar to those in the right, except in the outer margin of the cornea there is a pigmented spot extending from the root of the iris forward into the corneal tissue. This area is about 5 mm. long in a horizontal direction, and 3 mm. in a vertical direction. The spot looks just as if the deeper layers of the cornea had been tattooed with India ink.

Case 2, aged 8 years: General condition and condition of skin similar to that of his sister except he has no warty excrescences.

The general treatment of the patients is under the direction of Dr. Kessler, by whom these patients were referred to the author. The systemic treatment consists in the use of cocoa butter externally and internally injection of auto serum. The latter procedure is carried out by drawing away from the patient blood, allowing it to clot, and then, by the use of the centrifuge, the serum is secured as clear as possible and reinjected. This treatment is improving the condition of the skin.

With the little girl he has removed the warty-like tumors from each of the lower lids and from the right upper lid, and several of the growths from the face.

DISCUSSION.

Dr. George F. Sukey stated that two years ago he presented the cases of two children before the Chicago Medical Society. There were four children in the family. The oldest one was still living; three others had died since that time; one at the age of three, another at five, and the other at seven. He did not see the child that was three years of age, but the other two, aged five and seven years, respectively, came under his observation. The difference between Dr. Dean's cases and those he saw was that instead of the lesions being carcinomatous, they were sacro-carcinomatous. The patient, who was five years of age, had a distinct nodular growth on the right cornea and a pustular nodule on the lower lid, causing a marked entropion, on which he performed a plastic. The eye subsequently had to be enucleated and a short time thereafter the patient died. Both children were extremely emaciated. Serum injections and x-ray were tried, but of no avail. He lost track of the child of seven because the family had moved away.

Xeroderma pigmentosum is a rare skin lesion, and when it appears very little or nothing can be done for it. Usually the disease begins at two or more years of age and seldom runs beyond the seventh or eighth year. He does not believe there are more than 100 cases of the disease on record, covering a period of from 80 to 90 years.

(To be continued.)

FULTON COUNTY.

Seventy-first Meeting, Canton, Ill., May 4, 1915.

The seventy-first meeting of the Fulton County Medical Society met in the Auditorium of the Y. M. C. A. building in Canton, Ill., May 4, 1915, and was called to order at 2:00 p. m. by President Howard.

The minutes of the December meeting were approved. The memberships of Dr. H. T. Baxter, by transfer from the Sangamon County Medical Society, was accepted.

Dr. Stoops presented a partial report as to the revised by-laws and constitution. The committee had concluded that the constitution and by-laws of the Morgan County Medical Society contained the best in Medical Society regulations and with the necessary changes to apply to this society would give us a most satisfactory constitution and by-laws.

Dr. J. E. Coleman was elected as alternate to the state meeting.

Dr. Frank P. Norbury presented a paper on "The Emotions-Fatigue Exhaustion."

A report of "Seventy-seven Cases of Cystitis," arranged according to their etiology into nine groups, was presented by Dr. T. W. Gillispie of Peoria.

"Focal Infection" was presented by Dr. M. H. Whitlock of Canton. These papers were freely discussed.

Ray and Oren moved that the committee on constitution and by-laws were instructed to make the necessary changes in the Morgan county constitution and by-laws to conform to this society and present the same at the next meeting for consideration. Carried.

Visitors present: Dr. F. P. Norbury, Jacksonville; Dr. W. T. Gillispie, Peoria; Dr. E. W. Oliver, Peoria; Dr. Whiting, Canton; Dr. Allison, Good Hope

Members present: Howard, Parks, Oren, Kellar, Stoops, Snively, Chapin, Coleman, Hayes, Zeigler, Betts, Crouch, Allison, Whitlock, Ray, Putman and Boynton. Total, 22.

D. S. RAY,
Secretary.

HENDERSON COUNTY.

The Henderson County Medical Society met in Lomax, Illinois, May 4, 1915, at 1 p. m. Members present: W. J. Emerson, president; E. E. Bond, I. F. Harter, A. E. Lauver, H. L. Marshall, J. W. Medley, C. E. Kaufman and H. V. Prescott. Visitors present: John A. Robinson, Chicago; president of the State Board of Health; A. L. Brittin, Athens, president of the Illinois State Medical Society; F. N. Tambaugh and E. J. Wehman, Burlington, Iowa; C. B. Ripley and C. M. Rose, Galesburg; M. L. Bishoff, D. L. Newton, W. Reimer, C. F. Wahrer, C. W. Wahrer and J. W. Walker, Fort Madison, Iowa; Wm. Scott, Dallas City, Ill.

The minutes of the last meeting were read and approved. On motion, Drs. Kaufman, Prescott and Marshall were appointed a committee on resolutions.

The committee on resolutions reported. On motion, it was resolved that the society is opposed to the passage of House Bill No. 9 and Senate Bill No. 240, and that Senate Bills Nos. 213, 301 and 302, and House Bills Nos. 477 and 582 be endorsed and urgently request their passage.

Resolved, That because of the conditions that exist in regard to cancer, the Henderson County Medical Society appoint a committee of three to act as a county cancer commission, one to be appointed for three years, one for two years and one for one year. Hereafter, one to be appointed each year to fill vacancy.

Resolved, That this committee, through the delegate to the State Medical Society, recommend that the president of the state society appoint five or more of its members as a commission to be known as the Illinois State Cancer Commission. The duties of these commissioners will be to further any research or statistical work that may aid the solution of the cancer problem. Also, that it is theirs to initiate a work of education of the people

in regard to the question of cancer, its cause, prevention and curability. The president appointed Drs. J. P. Riggs of Media; E. E. Bond, Stronghurst, and C. E. Kaufman, Oquawka, as such commission. The following program was then taken up:

"The Doctor's Opportunity," Dr. John A. Robinson, Chicago.

"Cause, Pathology and Treatment of Rheumatism," Dr. A. L. Brittin, Athens.

"Fractures of the Patella," Dr. F. M. Tombaugh, Burlington, Iowa. Discussed by Drs. Rose of Galesburg and C. W. Wahrer and C. F. Wahrer of Fort Madison, Ia.

"Rheumatism in Infancy and Early Childhood," Dr. C. B. Ripley, Galesburg. Discussed by Drs. M. L. Bishoff, Fort Madison, Iowa; C. M. Rose, Galesburg, and I. F. Harter, Stronghurst.

"Indigestion, Causes Shown by Skiagraphs," by E. J. Wehman, Burlington. Interestingly discussed by several.

LAKE COUNTY.

The Lake County Medical Society held its regular quarterly meeting at the Moraine Hotel in Highland Park on Tuesday evening, April 27, 1915.

Immediately following dinner we proceeded with the regular order of business. The minutes of our last meeting were read and approved. The question of having a uniform quarantine regulation for Lake county was brought up by Dr. H. B. Roberts, and the chair appointed a committee of two, Drs. Roberts and Tombaugh, to make necessary investigation and report on same at our next meeting. Dr. J. P. O'Niel, Highland Park, was elected delegate to meeting of the State Medical Society, and Dr. M. Herschleder, Waukegan, was elected alternate. The local secretary was instructed to accept the invitation of the State Board of Health to make use of motion film "Tommy's Birth Certificate."

For the purpose of creating more enthusiasm and more of a "get together spirit" in our ranks the question of holding monthly meetings instead of quarterly as has been in practice, was discussed and it was unanimously decided that beginning with the June meeting the Lake County Medical Society shall meet regularly once each month.

The following program was then presented:

Paper, "Significance of Casts in Renal Disorders," by Dr. J. P. O'Niel. Discussion opened by Dr. H. B. Roberts.

Paper, "Hypernephroma," by Dr. F. M. Barker. Discussion opened by Dr. A. R. Sheldon.

Paper, "Functional Tests in Renal Disturbance," by Dr. M. Herschleder. Discussion opened by Dr. W. S. Bellows.

Case reports, "Renal Surgery," by Dr. J. C. Foley. Discussion opened by Dr. J. L. Taylor.

The following members were present: Drs. Barker, Bellows, Foley, Herschleder, Taylor, Tom-

baugh, H. B. Roberts, Rogers, Haskins, Ullmann, O'Niel and Ambrose.

It was decided that we make an outing of our June meeting, invitations to include the ladies and well filled baskets. Meeting then adjourned.

C. S. AMBROSE,
Secretary.

ROCK ISLAND COUNTY.

The regular bi-monthly meeting of the Rock Island County Medical Society was held April 13 at the New Harper Hotel, Rock Island, with twenty-three members and four visitors present. After the annual reports of the secretary and treasurer were presented the society proceeded to elect the following officers for the ensuing year: President, J. M. O. Bruner, Port Byron; first vice-president, G. A. Wiggins, Milan; second vice-president, H. A. Beam, Moline; treasurer, A. T. Leipold, Moline; secretary, A. E. Williams, Rock Island; delegates to state society, J. W. Seids, Moline, and W. D. Chapman, Silvis.

The applications for membership to the society of G. L. Langworthy, Moline, and Peter S. Winner, Watertown, were received. A committee consisting of Drs. Leipold and Chapman was appointed to draft an amendment to the by-laws providing for a probationary residence in Rock Island County before membership applications may be received.

Dr. L. W. Littig, Davenport, Ia., read a paper of unusual interest on "Two Postoperative Tragedies; Dilatation of the Stomach and Embolism." Dr. A. L. Brittin, president of the Illinois State Medical Society, gave an address emphasizing the importance of medical organization, and closing with a very practical paper on "Mouth Infections." Both papers were fully discussed by members of the society.

The next meeting, to be held in June, will be a joint meeting with Scott County Medical Society. The presence of distinguished guests at this meeting is anticipated.

A. E. WILLIAMS,
Secretary.

ST. CLAIR COUNTY.

The regular meeting of the St. Clair County Medical Society was held in Elk's Hall, East St. Louis, May 6, 1915, with President R. L. Campbell presiding and the following members present: Drs. Lillie, Cannady, Housh, Evans, Zimmerman, Van Boyd, Harney, Vonamel, C. T. and Walter Wilhelmj, DeHahn, Wiggins, Fairbrother, Housing, Fulgum, Arbuckle, J. C. and F. H. Gunn, McCracken, Thorp, Stanton, Bottom, Thompson, Scrugs, Lippert, Rendlemann, Skaggs, Rives, Linder, Lane, Spitze, Applewhite, H. Little, Ed. C. Little, T. C. Little, Kuerritz, Culbertson, Moeller, McNary, Boyne, Spannagh and Harvey. Visitors: the Honorable Mayor of East St. Louis, Mr. Mall-

man; Mr. Rapp, U. S. Internal Revenue Commissioner 18th District, State of Illinois; Hon. Joseph B. Graff of Peoria. Drs. Barker and Klug were elected to membership in the society by acclamation.

The secretary, Dr. Portuondo, being absent, Dr. E. H. Lane acted as secretary, and after the minutes of the last meeting were read and approved, the regular program was given.

Mr. John M. Rapp, internal revenue officer, 18th District Illinois, gave a very interesting talk in explanation of the anti-narcotic law as applying to the physician, following which the subject was open to discussion. A great many questions were asked which Mr. Rapp answered very clearly and concisely, and a rising vote of thanks was tendered him for his very able talk. Dr. Lillie made a motion that a vote of approval of the anti-narcotic law be made by the society, which was seconded and carried unanimously.

Dr. Rendlemann of East St. Louis read a paper on "Health Laws and Their Enforcement," which, in the opinion of the members present, hit the nail on the head in every respect. The discussion which followed was preceded by a short talk by Mayor Mallman of East St. Louis, who coincided with the salient parts of Dr. Rendlemann's paper, and stated that insofar as was in his power he would see that such ideas were carried out, and would be glad at any time to meet with and assist the society in that respect. The president appointed an investigation committee of five members from E. St. Louis, five from Belleville and one from each township, in an attempt to carry out the points in Dr. Rendlemann's paper. A publicity committee of five members was also appointed by the chair, Drs. Fairbrother, Lippert, Linder, Arbuckle and Lane, in accordance with the opinion expressed by Dr. Rendlemann that such a committee could do a great deal of good.

Dr. Lillie read a very able treatise on "Relations of the Civic Authorities to the Tuberculous Poor," which was freely discussed.

It was decided that the by-laws be amended so that in future, with the exception of July and August, the society should meet monthly instead of quarterly. Also decided that all future meetings of the society be held in Elk's Hall, East St. Louis.

The society then adjourned, after which a very palatable luncheon was served.

E. H. LANE, M. D.,
Acting Secretary.

Personals

Dr. Janet Gunn announces her removal to 30 N. Michigan boulevard, Chicago.

Dr. James A. Clark announces his removal to 30 N. Michigan boulevard, Chicago.

Dr. Henry S. Bennett has succeeded Dr. Perry H. Wessel as city physician of Moline.

Dr. and Mrs. Alexander C. Wiener, Chicago, have returned from a visit to Useppa Island, Fla.

Dr. Walter Stevenson, Quincy, who has been ill with diphtheria, is convalescent and has resumed practice.

Dr. Evarts A. Graham, Chicago, has been appointed surgeon in chief of the Park hospital, Mason City, Iowa.

Dr. Henry B. Favill, Chicago, was elected president of the National Dairy Council at its meeting in Chicago, April 24.

Dr. Robert L. I. Smith sailed for Europe, May 8, to work in the Belgian Red Cross with Dr. Dupage, surgeon-general of the Belgian army.

Dr. Adam Sz wajkart, Chicago, has been appointed head physician, and Dr. Haim I. Davis, consulting physician to the Cook County Psychopathic hospital.

Dr. Anna Dwyer, Chicago, has been appointed a member of the subcommittee of the morals commission on regulation of pool rooms and additional recreation facilities.

Dr. Henry G. Wildman of the County Tuberculosis hospital, Oak Forest, has been restored to professional standing by the decree of Assistant County Judge Hoover, dated May 14.

Dr. Walter H. Watterson, Waukegan, has been appointed head physician of the tuberculosis department of the Cook County Tuberculosis Sanatorium, Oak Forest, succeeding Dr. Glenford L. Bellis, resigned.

Dr. E. C. Rosenow, a member of the staff of the Memorial Institute for Infectious Diseases, has been appointed one of the directors of the Mayo Foundation and chief of the department of bacteriologic research. He expects to assume his new duties about July 1.

The Howard Taylor Ricketts prize for research in the departments of pathology and bacteriology and hygiene at the University of Chicago, which is awarded annually on May 3, the anniversary of the death of Dr. Ricketts from typhus fever acquired while investigating that disease in Mexico City, has this year been awarded to Miss Maud Slye for her work on "The Influenza."

ence of Inheritance on Spontaneous Cancer Formation in Mice."

News Notes

—Scarlet fever was epidemic in Mattoon and children were forbidden attending shows.

—Smallpox was reported also from Rochelle and Ashton, public meetings being forbidden and schools closed at the latter.

—Twenty cases of smallpox were reported at Rock Island, and thirteen at Pana in April. Both cities also had epidemics of measles.

—The Chicago Tuberculosis Institute appeals for contributions to make up the deficit of about \$2,500 of the \$12,000 needed for the budget for the year.

—Work on the new Iroquois hospital, Watseka, for the building and maintenance of which Mrs. Anna Donovan contributed \$50,000, is almost completed.

—The fortieth annual meeting of the American Academy of Medicine will be held at the Panama-Pacific Exposition during the meeting of the American Medical Association.

—The Society of Medical History, Chicago, elected the following officers: President, Dr. Arthur R. Reynolds; secretary, Dr. Mortimer Frank; councilor, Dr. Charles B. Reed.

—Two prospective patients for the proposed leprosarium in connection with the Alton State hospital are Angelo Lunardi of Highland Park, and Anna Jacobs, a patient in Cook County hospital.

—A building has been erected on East Capitol avenue, Springfield, especially for the use of physicians and dentists. The building will be 60 by 40 feet, two stories in height, and will contain thirty rooms arranged in suites.

Professor Gronnerud is known as one of the most competent teachers of operative surgery in this country, and the Illinois Post Graduate Medical School is to be congratulated on this appointment to its already efficient staff.

—Examinations for admission to the grade of assistant surgeon, U. S. Public Health Service, will be held June 21 at Chicago and in other cities. Applications should be addressed to the Surgeon-General, Public Health Service, Washington, D. C.

—The Elgin Physicians' club, at its meeting May 3, adopted resolutions petitioning the mayor and commissioners to change the ordinance regarding the health department, so that the health officer must be a qualified physician with laboratory experience.

—Mercy Hospital, Chicago, has an addition with 100 rooms in prospect at the result of a bequest from the late Charles Haines of St. Charles. Work may be under way shortly through an advance of \$200,000 from the Massachusetts Mutual Life Insurance Company.

—The Illinois State Board of Health announces an examination of candidates for the State license, June 21-26, at the Coliseum Annex, Chicago. Application must be made to the secretary of the Board at Springfield, on or before June 10, on blanks issued by the Board.

—Dr. Paul Gronnerud, professor of Operative Surgery, for the past ten years at the Chicago Polyclinic, resigned May 1. He has been appointed surgeon to the West Side Hospital and professor of gynecology and head of the department of operative surgery in the Illinois Post Graduate Medical School.

—Rockford has decided on the establishment of a municipal tuberculosis sanatorium to cost about \$17,000 and to be ready for occupancy in September. The building will be two stories and basement in height, and will be constructed of reinforced concrete tile and brick. The institution is to be known as the Oak Park Sanatorium.

—Examinations for admission to the Medical Corps of the United States navy will be held on or about July 6, 1915. Applications should be filed with the Bureau of Medicine and Surgery, Navy Department, Washington, D. C. Further information will be furnished on application to the Surgeon General, U. S. Navy, Navy Department, Washington.

—We have received a booklet containing the afterdinner speeches made at a banquet given in honor of Dr. Charles C. Hunt, by the Lee County Medical Society. Dr. Hunt has had the proceedings, together with the letters of regret, issued in booklet form, which he is presenting to his friends as a token of his appreciation of the manifestation of their regard.

—The annual meeting and election of officers of the Illinois State Hospital Medical Association was held at the Watertown State Hospital, April 29 and 30. Dr. Charles F. Reed of the Peoria State hospital was elected president; Dr. Charles B. Caldwell of the Lincoln State Colony, vice-president, and Dr. Ralph R. McCarthy, Chicago State Hospital, secretary. Elgin was selected as the place for the next meeting and the time was set for September.

Marriages

IRA FRANK, M. D., Chicago, to Miss Sylvia Simon of Minneapolis, April 6.

AUSTIN ALBERT HAYDEN, M. D., to Miss Mary Phillips, both of Chicago, April 28.

WILSON RUFFIN ABBOTT, M. D., Chicago, to Miss Ruth Webb of La Grange, Ill., April 15.

HUGH P. DORSEY, M. D., Chicago, to Miss Guila Grace Chatron of Capac, Mich., May 4.

SAMUEL M. GREEN, M. D., Dixon, Ill., to NELLIE E. GREEN, M. D., of Fowler, Ind., recently.

Deaths

HENRY E. LUBBINGA, M. D. Rush Medical College, 1896; also a druggist; died in his drug store in Chicago, April 5, from influenza, aged about 48.

THOMAS B. DREW, M. D. College of Physicians and Surgeons, Chicago, 1897; of Oswego, Ill.; a Fellow of the American Medical Association; died in Augustana Hospital, Chicago, April 28, from intestinal obstruction, aged 40.

HIRAM H. BARDWELL, M. D. Rush Medical College, 1869; for many years a practitioner of Flint, Mich.; was found dead at the home of his daughter in Chicago, April 24, from the effects of a gunshot wound of the heart, aged 75.

EDWARD LINCOLN KERNS, M. D. State University of Iowa, Iowa City, 1889; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; for many years a member of the board of supreme medical examiners of Modern Woodmen of America; died at his home in Moline, Ill., May 1, aged 49.

FREDERIC SHURTLEFF COOLIDGE, M. D. Har-

vard Medical School, 1891; a member of the American Orthopedic Association; a specialist in orthopedic surgery of Chicago; who moved to Pittsfield, Mass., about ten years ago on account of prolonged illness due to infection from an operation wound; died in New York city, May 15, from pneumonia, aged 49.

CATHERINE B. PATRICK SLATER, M. D. Northwestern University Woman's Medical School, Chicago, 1879; a Fellow of the American Medical Association; president of the Fox River Valley Medical Association in 1901-02; said to have been the first woman physician to gain entrance to the Berlin College of Medicine; surgeon to the Aurora City hospital, and for eighteen years a member of the board of education of Aurora, Ill.; died at her home in that city, May 10, from cerebral hemorrhage, aged 71.

JEROME HENRY SALISBURY, M. D. Rush Medical College, 1878; a Fellow of the American Medical Association; died suddenly at his home in Wheaton, Ill., May 14, from cerebral hemorrhage, aged 61. He was born in Fitchburg, Wis. He was valedictorian of his class in Wisconsin University, from which he graduated in 1876; soon after his graduation in medicine he began his teaching career as professor of chemistry in the Northwestern University Woman's Medical School, Chicago, later becoming assistant professor of chemistry and then assistant professor of medicine in Rush Medical College. He also occupied the chair of medicine in the Illinois Post-Graduate School. Dr. Salisbury's contributions to medical literature were extensive and varied. His acquaintance with foreign languages, added to his knowledge of medical writings, made him a valued consultant in the editorial positions which he occupied for several years. He was coeditor with Dr. Frank Billings of the section on General Medicine of the "Practical Medicine Series," and also coauthor with the late Prof. C. S. N. Hallberg of the "Physicians' Manual of the Pharmacopeia." He was also connected with the editorial staff of several other medical publications and since 1907 has been a member of the staff of the Journal. In the latter relationship his kindly manner and sympathetic aid won him the esteem and love of all his associates, who learned to value highly his extraordinary mental faculties and extensive medical knowledge.

Book Notices

THE LIMITATION OF OFFSPRING BY THE PREVENTION OF CONCEPTION. By William J. Robinson, M. D. With an introduction by A. Jacobi, M. D., LL. D., ex-president of The American Medical Association. Price, \$1.00.

The author, who is a pioneer in this country on the subject of fewer and better babies, has issued this book of 250 pages, giving all the arguments pro and con on the limitation of offspring by the prevention of conception. The book is very interesting, to say the least, and it will repay the time spent in reading it. Whether it will result in anything, only time will tell.

THE CLINICS OF JOHN B. MURPHY, M. D., at Mercy Hospital, Chicago. Volume IV. Number II. (April, 1915.) Octavo of 197 pages, 47 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Published bi-monthly. Price, per year: Paper, \$8.00; Cloth, \$12.00.

The present volume of clinics contains a large amount of space on osteomyelitis and spontaneous massive coagulation of cerebrospinal fluid, both of which are exhaustively treated. Several other topics, as carcinoma of colon, epithelioma of lip, intramural fibroid of uterus, and hypertrophy of the prostate, are included in this volume. One of the most interesting features included is a talk on carcinoma of the breast by Dr. Wm. L. Rodman, who has covered his subject in his usual interesting and masterly manner.

A MANUAL OF DISEASES OF INFANTS AND CHILDREN. By John Ruhrah, M. D., Professor of Diseases of Children, College of Physicians and Surgeons, Baltimore, Md. Fourth edition, thoroughly revised. 12mo volume of 552 pages, 175 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$2.50 net.

As a result of its cordial reception, this fourth edition has been prepared, bringing it up to date. It is rather better than most manuals, covering the subject of pediatrics thoroughly. It is a book primarily intended for the student. For the physician it should be a handy desk book. References are extensive and the number of illustrations, which are very good, is above the average for a book of this size. For the purpose for which it is intended—for rapid reference—it can be recommended highly.

MATERIA MEDICA AND THERAPEUTICS. A Text Book for Nurses. By Linette A. Parker, B. Sc., R. N., Instructor in Nursing and Health, Teachers' College, Columbia University. 12mo, 311 pages, illustrated with 29 engravings and 3 plates. Cloth, \$1.75 net. Lea & Febinger, Publishers, Philadelphia and New York. 1915.

A text-book for nurses, practical and instructive, where no attempt is made to include material not intended for them, nor containing matter that is not useful for nurses. Facts are presented; details that may confuse are avoided. The author emphasizes what action the drug ordered by a doctor may be expected to have, what untoward

effects may be looked for, and the emergency procedure pending physician's arrival in case of overdose. It should prove a valuable book for the nurse.

PYELOGRAPHY (Pyelo-Ureterography). A Study of the Normal and Pathologic Anatomy of the Renal Pelvis and Ureter. By William F. Braasch, M. D., Mayo Clinic, Rochester, Minn. Octavo volume of 323 pages, containing 296 pyelograms. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$5.00 net.

A timely work gotten up in an exhaustive manner, well illustrated from pyelograms of actual conditions found on X-ray examination. This subject, which is comparatively new and which has opened up a valuable method of diagnosis of surgical renal diseases, is ably treated by the author, whose large experience in the use of this method has been fully drawn upon.

The work is divided into ten chapters—the History of Pyelography Technic, the Normal Pelvis, Abnormal Position, Mechanical Dilatation, Inflammatory Dilatation, Renal Stone, Ureteral Stone, Renal Tumor, and Congenital Anomaly. A useful bibliographic index is included.

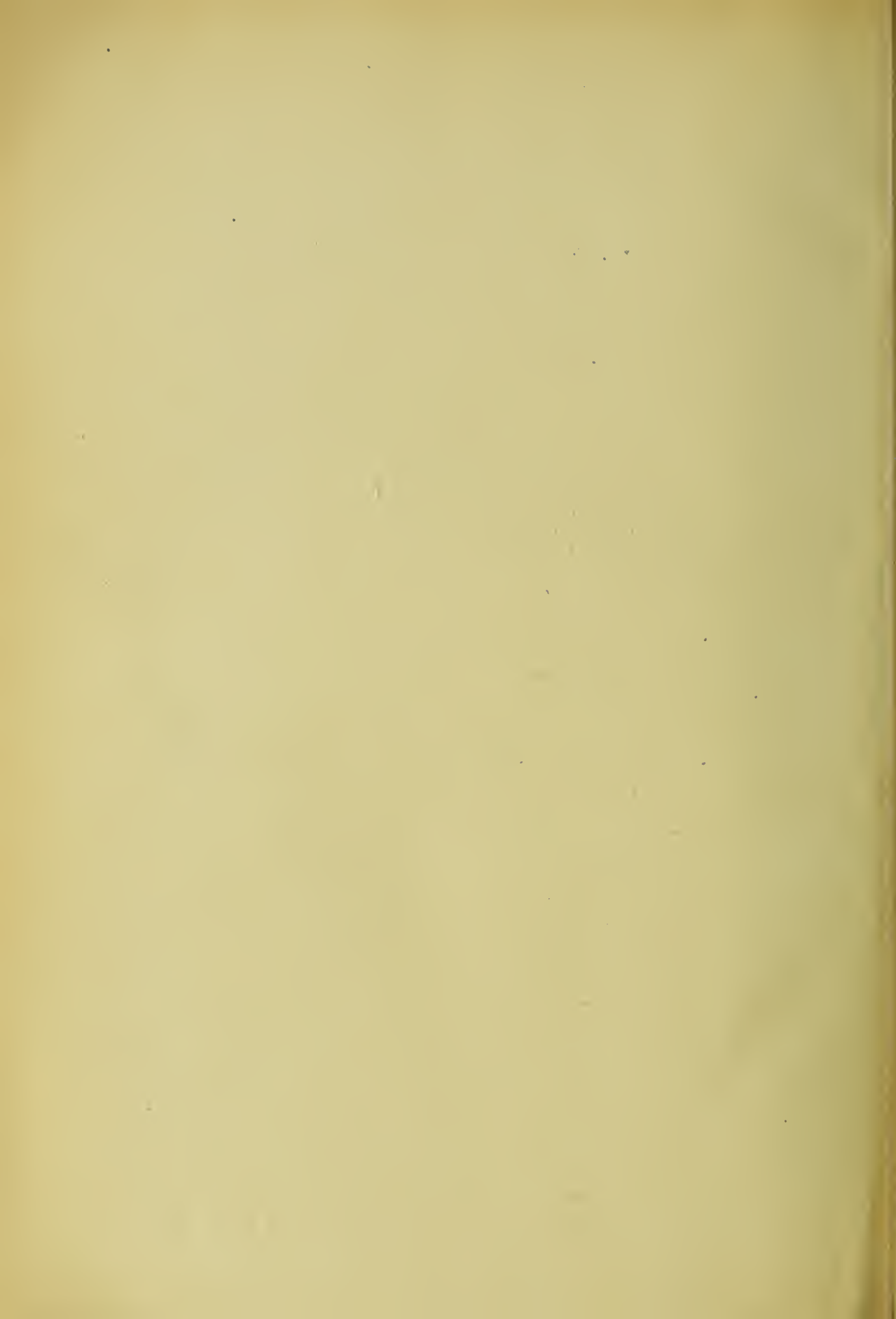
For those who are interested in surgical diseases of the kidney, this work should prove valuable. The mechanical features of this volume are excellent.

PATHOLOGICAL TECHNIQUE. Including Directions for the Performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By F. B. Mallory, M. D., Associate Professor of Pathology, Harvard Medical School, and J. H. Wright, M. D., Pathologist to the Massachusetts General Hospital. Sixth edition, revised and enlarged. Octavo of 536 pages with 174 illustrations. Philadelphia and London: W. B. Saunders Company, 1915. Cloth, \$3.00.

This new edition is chiefly gotten up to bring the subject of pathological technic up to date. The work now contains Bielschowsky's silver impregnation stain for nerve-fibers, connective tissue and reticulum, Bensley's methods for demonstration of mitochondria and other cytoplasmic granules, Herxheimer's alcohol-acetone solution of Scharlach R. for staining fat, the complement-fixation test for gonorrhoeal infection, Lange's collidal gold test, complement-fixation test for echinococcus test, and the Eycles and Sternberg's silver impregnation stain for treponema pallidum in sections are included. Various other new methods and descriptions bring this valued book up to date. It is a reliable book on pathologic technic, and is suited to the needs of the general practitioner as well as the pathologic laboratory.

PROCEEDINGS OF THE MEDICAL ASSOCIATION OF THE ISTHMIAN CANAL ZONE for the Half Year October, 1912, to March, 1913. Vol. V., Part 2. Panama Canal Press, Mount Hope, C. Z. 1914.

"SWAT THE FLY!" A One-act Fantasy by Eleanor Gates, author of "The Poor Little Rich Girl," "We Are Seven," "The Biography of a Prairie Girl," "The Plow-Woman," etc. Colored Jacket by Everett Shinn. The Arrow Publishing Company, 116 West Fifty-ninth street, New York.



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